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MEDICAL AND SOCIAL PROBLEMS OF POPULATION—TRENDS AND IMPLICATIONS

CHAIRMAN'S ADDRESS

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The purpose of this paper is to call attention to some f the broader aspects of medicine, particularly those asociated with changes in the size and age structure of the opulation in different areas of the world. These probms vary widely. In the United States, the total population is aging and is still increasing in size, although a ownward trend is probable within the foreseeable fue; Asia struggles with difficulties arising out of multides she cannot easily support; Western Europe is faced ith long-time trends threatening a decline in population. he social scientists have studied these conditions carelly; responsibility for action in an enlightened society es with the individual members and groups.

As man has progressed from the dawn of civilization, is primary concern has always been survival: survival f the individual and survival of the group. This has also een medicine's primary function; life, health and relief f suffering represent the goals of medical science and ractice. Moreover, a very fair measure of success has een achieved. Modern medicine, sanitation, and techology have dramatically reduced the number of deaths rom infectious diseases and have increased the life exectancy in Western society. These and other changes esulting from man's increasing knowledge have created ome of the problems that now so urgently demand soluion.

The modern era in Western civilization should probably be dated from the intellectual, agricultural, commercial, and industrial revolution arising in Western Europe in the 17th and 18th centuries and progressing rapidly in the 19th. Today, at the middle of the 20th cenury, Western Europe and North America are far advanced in the phase of industrial and technological development; Africa and Asia are just beginning to enter this stage; other areas, such as Russia and South America, are in a transitional stage. A close correlation has been demonstrated between these stages of industrial development and three phases of population growth.[1] These are sketched diagrammatically in Chart 1.[1a] First is the phase of preindustrial "high-growth potential" in which the birth and death rates are both high, as in the Orient. The second stage, appearing with the introduction of technological advances, sanitation, and medicine, is a period of "transitional growth" characterized by a declining death rate while the birth rate remains high, thus producing a phenomenal growth in population. The third phase, following the other two, is one of "incipient decline," in which the birth rate falls progressively, producing a trend toward declining total population growth. Western Europe is in this phase. The United States has passed through the first two phases with a rapid population growth (Chart 2); this has been due to a high birth rate, a rapidly decreasing death rate, and heavy immigration.[2] We are approaching the end of this era, as is evident from a study of long-term trends in birth and death rates.

INCREASED LIFE EXPECTANCY IN WESTERN SOCIETY

An interesting estimate (Chart 3) has been constructed of life expectancy in ancient Greece, imperial Rome, medieval England and the United States of today.[3] The estimated average age at death in the time of Pericles was approximately 18 years; in the ensuing 2,000 years it slowly rose to perhaps 33 years, but in the past half century in the United States it has zoomed to almost 70 years. The change has been largely due to the great decrease in deaths from infectious diseases. Decreases in deaths from diphtheria, scarlet fever, whooping cough

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Read before the Section on Internal Medicine at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

[1] Notestein, F. W.: Population—The Long View, in Schultz, T. W.: Food for the World, Chicago, University of Chicago Press, 1945, pp. 36-69.

[1a] This article has been shortened for publication in THE JOURNAL by omission of charts 1, 2, 3, 5, 6, and 8. These will appear in the authors' reprints.

[2] The Problems of a Changing Population: Report of the Committee on Population Problems to the National Resources Committee, May, 1938.

[3] Shock, N. W.: Trends in Gerontology, Stanford University, Calif., Stanford University Press, 1951.

and typhoid in New York City in the period from 1868 to 1921 are shown in Chart 4.[4] The lives saved were primarily those in the younger age group. However, progress has been made in the older age group as well, as is clearly shown in Chart 5, with the marked reduction in the death rates from pneumonia and influenza in persons aged 65 years and resulting from the introduction of antibiotic and chemotherapeutic drugs. The principle causes of death have shifted from the infectious to the degenerative and neoplastic diseases (Chart 6). It is not likely that the life expectancy can be extended far beyond 70 years within the near future.

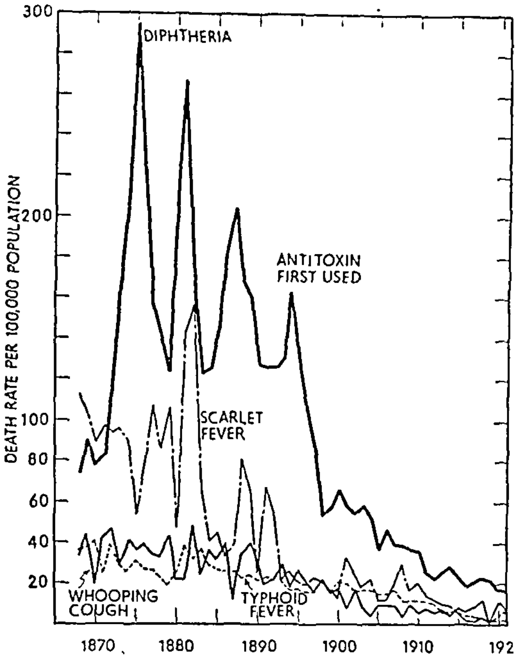

Chart 4.—Death rates per 100,000 population from typhoid, whooping cough, scarlet fever and diphtheria, in New York City, from 1868 to 1921.[4]

THE PROBLEMS OF AN AGING POPULATION

As the proportion and number of older people increases, the associated problems increase. Of these, the foremost is the greater incidence of chronic diseases not causing immediate death, for the percentage of impaired and disabled individuals increases directly with age (Chart 7).[3] Moreover, in addition to physical disability, there are the serious emotional disturbances of old age; senescence is often characterized by frustration, bitterness, and other manifestations of physiological and social maladjustment. Our hope is that we may delay senility rather than prolong it.[5] Ideally, old people should be kept physically well, mentally alert, energetic, and vigorous.

Another aspect of an aging population is the constantly-increasing burden placed upon the wage earners by the growing proportion of aged (Chart 8). Only 8% of our population are now over 65 years of age, but this figure will increase to an estimated 13% in the next half century. It is more difficult to provide care for the aged than it is to provide care for the young because of the higher incidence of physical and mental disability. Our state institutions, already overcrowded, are reserved for the actually incompetent. There is a great need for homes —private, semiprivate, or state—in which elderly groups may live together without being a burden to their families and receive therein such care as may be required.

DECLINING BIRTH RATES

The change in the age-structure of our population has resulted from a decrease in our birth rate even more than from the decrease in the death rate. It is perhaps not sufficiently realized that in most of Western Europe and North America the birth rate has been declining more or less steadily since the latter part of the nineteenth century.[6] The falling birth rate has been well documented in Sweden for the past 70 years (Chart 9); the death rate likewise has fallen; considerable emigration has occurred, and although the total population thus far has not actually decreased, it has a different composition in two important respects: 1. It has a higher percentage of old people; 2. The birth rate is so low that, as the aged die they are not potentially replaced by persons in younger age groups. The net reproduction rate in Sweden is now less than 75% of that required to maintain a population which reproduces itself.[6a] The same situation in general exists or is developing in France, England, Italy and other countries of Western Europe; a similar long-term trend is present in the United States, as may be seen from Chart 10, showing the estimated number of births per 1,000 women of childbearing age.[2]

The question may well be asked as to what measures may be taken to maintain the net reproduction rate at a desired level. It is estimated that in Sweden those married women able to bear children should each have a family of four in order to offset the unmarried and childless women.[6a] The number of childless marriages may be decreased by medical advances, but the effect will probably not be statistically significant. Social pressures may be brought to bear; Germany and Italy under Hitler and Mussolini attempted to increase the birth rates through pronatal policies such as propaganda to remove the stigma attached to the unmarried mother, allowances for maternal and child care, payments of bounties for each child, and other governmental measures. The results of similar programs in democracies, such as Sweden and France, are at present inconclusive.[6a,b] The steps already taken in this country toward maternal and child welfare may be looked upon as indicative of such trends, although for the most part they have been aimed

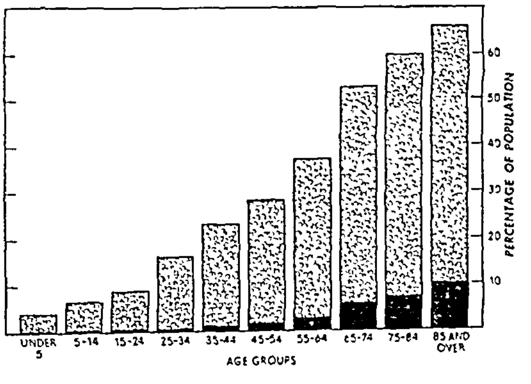

Chart 7.—Per cent of population impaired and disabled according to age (1946). From Shock,[3] p. 13. The dark blocks represent those disabled, the stippled blocks, those impaired.

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[4] Cohn, A. E., and Lingg, C.: The Burden of Diseases in the United States, New York, Oxford University Press, 1950.

[5] Simms, H. S.: The Problems of Aging and of Vascular Diseases, Science 95: 183-186, 1942.

[6] (a) Myrdal, G.: Population: A Problem for Democracy, Cambridge, Harvard University Press, 1940. (b) Thompson, W. S.: Population Problems, McGraw-Hill Publications in Sociology, New York, McGraw-Hill Book Company, Inc., 1942. (c) Davis, M. E.: Personal communication to the author.

at the solution of other problems and only indirectly bear on population growth. Furthermore, factors associated with economic prosperity and war increase the birth rate, as was clearly evident in the United States in both World Wars and is still apparent. It is difficult to predict how long the present upsurge will last; in all probability it will spend itself here as in Western Europe in a relatively short time; the downward trend will be resumed, and early in the next century the population is likely to become stationary or may actually begin to decline. If this prediction is fulfilled, our nation will be faced with three possible solutions: stimulation of reproduction, lowering of immigration barriers, or acceptance of gradual decline in population.

PLANNED AND UNPLANNED POPULATION CONTROL IN WEST AND EAST

The population problems of those countries now in the preindustrial or transitional stages are in many ways entirely different from those of Western Europe and North America. The people of the West have learned to restrict population, feed themselves better, house themselves more adequately, and to an increasing degree realize the benefits of leisure and culture. There can be no doubt that the progressive and continued decline in the birth rate has been due in large measure to the voluntary control of conception. The motivation to control the number of births is linked with the rise of industrialization. In a sense, comfort, luxury, security, and leisure have taken precedence over reproduction; this may be regarded as the result of the ascendancy of philosophies emphasizing the welfare of the individual, and the growth of "urbanism as a way of life." [7]

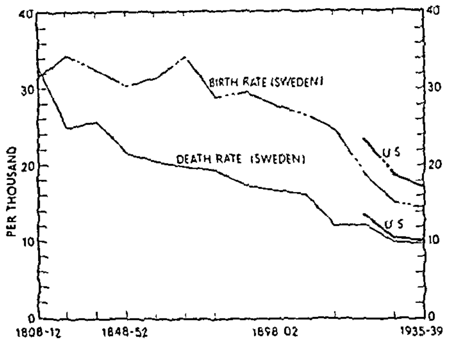

Chart 9.—Crude birth and death rates of Sweden and the United States, 1808 to 1939, based on data from Thompson,[6b] pp. 152 and 217.

From earliest times mankind has resorted to various measures to control the size of the family. Infanticide is perhaps the oldest method; it is still in existence in certain areas. In Western society, it is illegal, and the taboo against it is so strong that reports of its occurrence rarely appear. Abortion, on the other hand, although illegal except for medical indications, is widely used; it is estimated that there are at least one million criminal abortions performed each year in the United States.[8] Obviously, abortion does not carry the same taboo as infanticide, but, nevertheless, the feeling against it is so strong that there is little likelihood that it will ever become a legal or accepted method of birth control. Ultimately, population control must depend on methods of preventing conception. Continence, rhythm, and coitus interruptus may be effective, but the general dissatisfaction with these methods in the United States is evident from the popularity of contraceptive devices. Surgical sterilization by means of castration, tubal ligation, hysterectomy or vasectomy is not popular for obvious reasons.

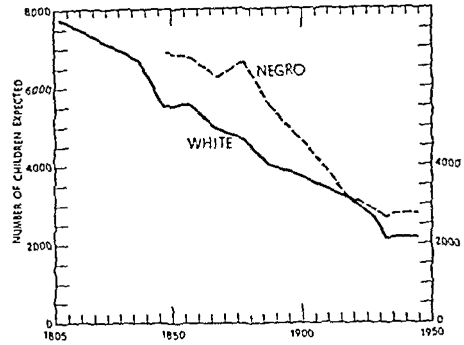

Chart 10.—Number of births expected per 1,000 women living through the childbearing ages at estimated birth rates for successive periods, 1810-1950. From the United States National Resources Committee.[2]

OVERPOPULATION

As the countries of Western society came under the influence of modern industrialization there was a long lag between the drop in the death rate and the subsequent decline in the birth rate; during this phase the population increased rapidly. This will doubtless occur also in the areas now entering industrialization; most of them are already densely overpopulated. Japan is an illustration. Her birth rate has begun to fall significantly; in fact her birth and death rates are similar to those of Britain and Wales a half century ago (Chart 11). Japan's population doubled itself between 1870 and 1920 and increased 31% between 1920 and 1940. A deceleration in the rate of growth became apparent in Japan around 1935, but the population may be expected to continue to increase

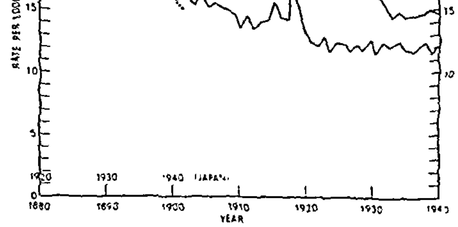

Chart 11.—Birth and death rates for Japan, 1921-1941 (represented by broad line) and for England and Wales, 1881-1939 (represented by narrow line), as found in Notestein,[1] p. 47.

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[7] Wirth, L.: Urbanism as a Way of Life, Am. J. Sociology 44: 1-24 (July) 1938.

[8] Mair, G. F.: Studies in Population, Proceedings of the Annual Meeting of the Population Association of America, Princeton, Princeton University Press, 1949.

for some time—this in a country already more heavily populated per acre of arable land than any other in the world.[9]

India, in the early phases of industrialization, already has a dense population, and it is increasing rapidly; in the decade from 1931 to 1940 the growth is estimated at 50 million, an increase in a 10-year period as large as the total population of Great Britain.[10] This increase may continue for an indefinite number of years as industrialization progresses, the death rate decreases, and the life span increases. Recently, Nehru has officially advocated birth control for India. The speed with which it can be introduced and adopted by the people is of vital importance.[10]

In other areas just entering the phase of early industrialization the situation is also critical. China's birth and death rates are very high; industrialization will surely decrease the death rate before it influences the birth rate; the population pressure, already intense, is certain to increase. Egypt, one of the most overpopulated and poverty-stricken countries, at present rates of growth, will probably double its population in the next 40 years.[11] Latin America, with a population now equal to that of the United States and Canada, will also double its population in the next 40 years.[11] Puerto Rico is already so crowded that its inhabitants have emigrated by the thousands to New York in the past decade; yet the population is increasing at a rate which is likely to double itself in approximately 30 years.[12]

The magnitude of the crises developing in these areas cannot be exaggerated. Man must learn to control his numbers, to correlate population with the supply of food and other conditions of well-being; if this is not done, the inevitable controls will be the "natural" limiting factors of population as described by Malthus: poverty, famine, disease and war.

Famine has been the scourge of Asia throughout recorded history. India and China are not able to feed themselves now. It may be alleged that they would be able to do so if adequate facilities for transportation were provided and modern methods of agriculture were introduced. The geographers and agriculturists who have studied this question are not in agreement.[13] Certainly more people could be fed than are now being fed, but there is no reason to hope that the increased production and distribution of food can keep pace with the present rate of increase in the population. It is estimated that two-thirds of mankind are chronically undernourished. Even if the population of the world were to remain stable, food would remain a principal concern of the majority of the human race for as many years as can be foreseen. But if present trends continue, as they will unless prompt world-wide action is taken, the population will not remain stable; it will increase rapidly; the bitter struggle for survival will become even more desperate.

In former ages, pestilence was a potent factor in the control of population. Modern medicine, sanitation, housing and technology have so changed the situation in Western society that deaths from epidemic diseases are becoming almost negligible. As these changes are introduced into the Orient, as dysentery, pneumonia, typhus and typhoid, cholera, malaria, and other scourges are brought under control, food will become an ever greater problem.

The influence of war on population has been variable. In earlier epochs, tribes were wiped out and nations submerged by conquering armies. The two World Wars, however, did not produce any serious depopulation; in fact, in all countries concerned, the birth rates rose and remained high for several years thereafter. In general, the effects of unusual economic and political situations, including wars and depressions, on total population growth are relatively transitory.

SUMMARY

In this paper I have endeavored to focus attention upon the relationships between population, the industrial revolution and modern medicine. The population problems of the world today can be divided into those of overpopulation in countries such as China and India, and those of a potentially declining population and aging in Western Europe and North America. The role of rational preventive medicine is clearly defined. In overpopulated areas, crises can be averted or ameliorated only through rationally planned conception. On the other hand, in those areas in which modern sanitation and medicine have resulted in lower death rates and greater longevity, the period of rapid population growth now seems to be nearing an end. Here, control of the degenerative diseases, of cancer, and of the social difficulties of old age are most prominent.[14]

The rational control of population depends on the attitudes of adults toward parenthood and on the availability of technical information; it is a personal and a social educational process. In it, the physician must bear his share of the responsibility of leadership.

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9. World Population in Transition, American Academy of Political and Social Science, the Academy, January, 1945.
10. Davis, K.: The Population of India and Pakistan, Princeton, N. J., Princeton University Press, 1951.
11. Milbank Memorial Fund: Demographic Studies of Selected Areas of Rapid Growth: Proceedings of the Round Table on Population Problems: 22d Annual Conference, April 12-13, New York, 1944.
12. Perloff, H. S.: Puerto Rico's Economic Future: A Study in Planned Development, Chicago, University of Chicago Press, 1950.
13. Footnote 1. Footnote 6c.
14. Dickinson, F. G.: Some Social Implications of Medical Progress, Ann Int. Med., to be published.

Treatment of Narcotic Addicts.—The general practitioner should realize that it is almost impossible to treat addicts outside of institutions. Generally, addicts who present themselves to practitioners and request treatment are actually attempting to obtain supplies of drugs to maintain their addictions, and very frequently are obtaining drugs from a number of physicians. The general practitioner should therefore not attempt withdrawal of opiates or barbiturates in either the home or in general hospitals. The patient should be advised, and if possible persuaded, to enter some institution which specializes in treatment of addicts. . . .

The general practitioner can contribute most to the treatment of addiction after the patient has returned to his home following a period of institutional treatment. These individuals are in need of sympathetic understanding; they should not be regarded as criminals and every effort should be made to help them adjust to the various stresses of living without resorting to drugs.—Harris Isbell, M.D., What to Know About Drug Addiction, *GP*, Sept., 1951.

IMPORTANT CLINICAL DIVIDENDS FROM X-RAY EXAMINATION OF THE COLON

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A thorough, well-conducted radiologic examination of the large intestine represents a major diagnostic procedure in terms of technical and professional effort. If the considerable blocks of productive time which a radiologist must set aside for this one form of activity, as well as the time of technical assistants and the tying up of apparatus for considerable periods, are to be considered justifiable, it follows that the end-results of the procedure must constitute diagnostic assistance of great magnitude. From time to time it is necessary for the radiologist to reassure himself that the large expenditures of time and effort are truly worth while. A review of activities in the diagnostic division of the department of roentgenology at the University of Michigan for the five-year period July 1, 1944, to June 30, 1949, provides an opportunity to scrutinize in retrospect the clinical end-results of a considerable expenditure of effort in examinations of the colon. During that period over 200,000 patient-visits were made to the diagnostic division of the department, and of these, 7.2%, or 15,350, represented colon examinations. The proportion of this type of examination in relation to all other procedures varies less than one percentage point over the years.

With almost negligible fluctuation from year to year, 71.7% of all such examinations yielded findings considered to be entirely within the range of normal. It is fallacious to assume that this relatively high rate of normal findings represents unnecessary investigation and wasted effort. To be able to report with a high degree of accuracy that no serious abnormality exists represents a very considerable aid to the referring physician whose help and advice has been sought by patients presenting symptoms which suggest colonic disease. "Negative" findings which serve to narrow the field of possibilities in difficult and often obscure problems of differential diagnosis are truly valuable.

Six per cent of the total number of colon investigations represented repeat examinations in situations where diagnostic problems were particularly difficult. In 338 patients the presence of organic colonic disease was discovered although the exact nature could not be determined on the basis of x-ray findings. In this particularly difficult group the reexamination rate reached 42%, whereas in the preponderant normal group reexamination was utilized in only 3%.

ABNORMALITIES OF THE LARGE INTESTINE

Radiologically demonstrable abnormalities of the large intestine were found in 4,291 patients. The largest group within this category, 1,663 patients, presented one or more abnormalities among a large list of miscellaneous situations, no one of which occurred with sufficient frequency to be considered separately. Within this category of miscellaneous findings are to be found various postoperative alterations of the colon, fistulous tracts involving the large bowel at some point, megacolon, developmental anomaly, displacement by some unusual abdominal mass, hernia involving the colon, volvulus of colonic loops, and others. The ability to scrutinize segments of colon, permanently or temporarily abandoned by sidetracking operations, is frequently the source of highly important information for the surgeon in charge of the patient's welfare. By this means the subsidence of inflammatory lesions which earlier produced alarming obstructive symptoms can be detected. Decisions regarding the reestablishment of colonic continuity following temporary colostomy are often based largely on x-ray findings. The relationship of the large intestine to readily recognizable intra-abdominal masses of extra-alimentary nature is often helpful in the ultimate identification of such masses. This is particularly true in the case of primary tumors arising in retroperitoneal tissues. Occasional instances of endometriosis involving the colon come to light, explaining obscure lower intestinal tract bleeding or colonic obstruction. Unsuspected intraluminal foreign bodies can often lead to great diagnostic confusion until they are recognized on the occasion of x-ray examination. Hernias involving the diaphragm, anterior abdominal wall, or the inguinal canal may be shown to contain colonic loops. Herniation of the greater omentum almost invariably produces characteristic displacement and derangement of the colon, not infrequently providing totally unexpected clinical information for the diagnostician. The existence of megacolon, whether true Hirschsprung's disease or the expression of some obscure form of intestinal tract neuropathy, is easily verified by means of roentgenologic examination, and volvulus of the cecum, or more commonly the sigmoid, announces its presence in startling fashion. The same is true for intussusception.

Considered as a group, demonstrable miscellaneous abnormalities, involving the colon directly or indirectly, were encountered in the ratio of one to every six and one-half patients shown to be normal on radiologic investigation of the colon. Some of the abnormalities so grouped were of little clinical import although in some instances they were potentially significant in terms of future abdominal surgical procedures. Some of the miscellaneous findings, on the other hand, were of outstanding importance to the patient. The radiologist should

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expect to derive much gratification from the factual information he is able to turn up in the category of miscellaneous abnormalities.

PATHOLOGICAL ENTITIES

Diverticulosis.—The largest single pathological entity to be encountered in the course of examinations by means of the barium sulfate enema is diverticulosis with or without associated inflammatory disease of the gut wall. One thousand four hundred seventy-seven patients, or one for every 7.2 individuals found to be normal, were shown to have demonstrable diverticula of the colon. The majority of these were localized to the middle and proximal portions of the sigmoid, although in several instances similar outpouchings were observed throughout the descending colon and even across the abdomen in the ascending limb. The presence of multiple diverticula is so commonplace in middle-aged and older patients that their importance tends to be minimized in the minds of radiologists, internists, and surgeons. The realization that they represent potential sources of perforation and subsequent peritonitis with abscess formation is offset by the universal experience that this complication occurs with relative infrequency. Nevertheless, associated inflammatory disease can and does occur, a fact which endows the discovery of diverticula with considerable importance because it encourages serious consideration of the possibility by the referring physician in the event of subsequent acute abdominal situations.

Colitis.—The presence of colitis, whether it be of unknown or specific etiology, can be determined with great accuracy by direct proctoscopic or sigmoidoscopic means if and when the process involves the lowermost segments of the large intestine. Fortunately this is often the case. Even when so discovered, it immediately becomes a matter of great interest to determine the full anatomical distribution of the disease. In certain types, particularly those of tuberculous or amebic origin, it is common to find the disease restricted to the cecum and the right colon, where it is totally inaccessible to direct external investigation. The response of nonspecific ulcerative colitis to treatment can be determined with considerable accuracy on the basis of repeated x-ray examination. The differentiation between primary neoplasm in the right colon and inflammatory lesions involving this same portion of the gut is often an extremely difficult problem without x-ray assistance. In the five-year period under discussion, conclusive evidence of ulcerative colitis, including all forms, was encountered in 238 patients, or in the proportion of one to every 45 patients found to have perfectly normal colons.

Primary Colonic Neoplasm.—Without doubt, the suspicion or fear of primary colonic neoplasm represents the commonest reason for requested examination by x-ray means. In this series, primary neoplasm of the large intestine was reported in the case of 575 patients, representing the finding of one such lesion for every 18½ patients in whom no colonic abnormality of any sort could be detected. The average of 115 patients per year in a patient population representing some 3,000 per year would seem at first glance to be a small return for so large a diagnostic effort in terms of this important lesion. As a matter of fact, however, the certainty of ultimate lethal outcome, in the absence of early apprehension and adequate surgical removal, endows the arduous search for primary colonic neoplasms with a sustained and deeply rooted earnestness. To a very considerable extent the degree of success with which x-ray examination of the colon is practiced can be gauged by the resultant yield of identified primary new growths.

During one year, July 1, 1947, to June 30, 1948, of the five-year period reviewed, the x-ray finding of primary neoplasm of the large intestine was reported in 131 persons. Twenty-nine of these persons were set aside from further detailed analysis for the following reasons:

Sought treatment elsewhere	9
Lesions ultimately shown to be inflammatory disease	7
Colonic lesion proved as extension from other organ	6
Polyps proved to be benign	5
Endometriosis	1
Error in cataloguing	1

The remaining 102 patients were in every instance verified as having primary malignant tumors involving some segment of the large bowel. All recorded clinical and laboratory findings were carefully reviewed, and symptomatology, details of treatment, and deaths which occurred within the year following the period of investigation were studied in detail. The average age of the group was 59.7 years, with male patients predominating (64%).

Symptoms: Of the initial symptoms recalled by the patients, change in bowel habit (48%), observed blood in stool (43%), and abdominal pain (20%) occurring singly or in combination were the most frequently recorded. The appearance of earliest symptoms prior to hospital admission averaged seven and one-half months with 68% of the group reporting over-all duration of six months or less. On the average, patients waited three months after observing initial symptoms before first consulting a physician.

At the time of admission to the hospital or clinic, visible blood in stools was the commonest single symptom of the underlying disease (75%), closely followed by weight loss of 5 lb. (2.7 kg.) pounds or more (65%), and abdominal pain (53%). Closely grouped thereafter came diarrhea (36%), anorexia (34%), and constipation (33%), to be followed by a lengthy list of specific symptoms occurring with low individual frequency. Ribbon stools were described in but 14%.

Physical Signs: The leading physical signs of the underlying neoplastic disease were the following:

Positive sigmoidoscopic findings	69%
Palpable mass on rectal examination	58%
Hemoglobin below 80%	46%
Demonstrable hemorrhoids	34%
Externally palpable abdominal mass	21%
Evidence of distant metastasis	15%

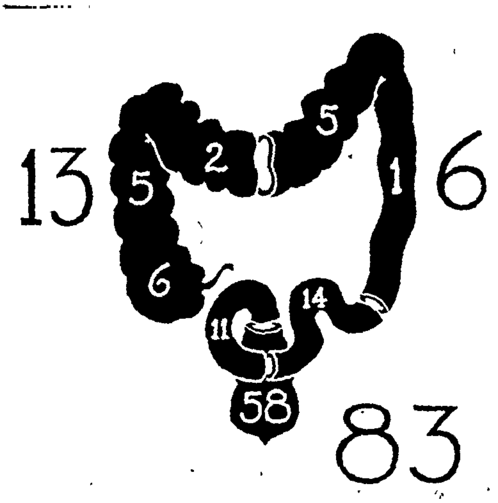
The most outstandingly effective methods of physical examination proved to be sigmoidoscopic examination, positive in 68.6% of the total group though employed in but 88 instances, and rectal examination, which successfully detected the lesion in 58% of the total group. Anemia, as expressed by hemoglobin determination below 80% of normal, was observed in 46% of the group. Hemorrhoids were detected in 34%, externally palpable mass in 21%, and evidence of distant metastasis in 15%.

With the exception of blood in the stool, the earliest symptoms associated with subsequently proved malignant colonic neoplasm are vague, and patients are wont to disregard them for considerable periods of time. The startling symptom of visible blood becomes a reliable index of the underlying disease in three-quarters of the patients before the tumor is ultimately apprehended. In over half of the patients abdominal pain suggests the wisdom of directed search for the presence of malignant neoplasm. Radiologists will be the first to agree that direct knowledge of the lesion obtainable by inspection and palpation is to be preferred over the indirect methods of roentgenology. It is easy for these same radiologists to overlook the fact that as many as 68.6% of a sizable group of patients with primary malignant colonic tumor can be accurately given a diagnosis on the basis of sigmoidoscopic examination without benefit of x-ray. The long-established wisdom of routine digital examination of the rectum is well substantiated by the fact that by this means 58% of all colonic malignancies can be directly apprehended.

X-Ray Diagnosis: Of the 102 patients under scrutiny, all of whom were shown by one method or another to have primary malignant lesions of the large intestine, and all of whom were subjected to searching x-ray examination of the colon, the lesion though present was missed on roentgen examination in one instance. On subsequent review of film evidence a short, annular deformity of the transverse colon very close to the splenic flexure was discernible though almost completely hidden by superimposition on the descending colon. This constitutes an inexcusable diagnostic error because examination should not have been considered complete and satisfactory until all segments of the gut lumen had been adequately scrutinized, and obviously this was not the case. The lesion was detected 85% of the time on the basis of initial routine fluoroscopic and standard film examination. In 14% of the patients reexamination by various specialized methods was needed to establish the diagnosis. The predominance of the rectum and the sigmoid as sites of malignant large bowel lesions was once more proved, with 56.8% in the rectum, and 24.5% in the sigmoid (a total of 81.3%). Dividing the sigmoid lesions into those which occurred in the proximal half and those which occurred in the distal half, the distribution was found to be 13.7% and 10.8%, respectively (figure). Granting that the x-ray method of approach cannot be considered essential in detecting rectal lesions or those which involve the lower reaches of the sigmoid, since digital examination and the use of the sigmoidoscope are here completely efficient, lesions which fall just beyond the reach of the sigmoidoscope, within the upper part of the sigmoid, occur in considerable numbers, and it remains for the radiologist to provide an accurate means of detection. Although the occurrence of primary malignant tumors above the junction of descending colon and sigmoid is far less frequent, diagnosis except in the case of very advanced lesions cannot be accomplished with acuracy by any other method in wide usage today. The radiologist is justified in taking full credit for the apprehension of the one-third of primary colonic neoplasms.

Air contrast technique was employed in 75% of this patient group, a much higher incidence than its over-all use in all patients subjected to colon examination. The reasons for this are obvious, of course. The detection or the suspicion of abnormality on fluoroscopy is logically followed with more elaborate filming methods than are required when screen examination is obviously normal. Another factor in the wide use of air contrast is the fact that many patients complain of rectal bleeding, which might mean the presence of polypoid lesions.

As observed roentgenologically, the tumors in this group ranged from 1 to 12 cm. in length, with an average of 5 cm. The extremes were recorded in very few instances. Seventy-five per cent of the lesions were described as annular in character, 23% were polypoid in appearance. Evidence of dilatation of gut lumen proximal to the lesion was recorded in 24% as compared with signs of retrograde obstruction to the introduction of barium in 40%, complete in 10%. On initial examination 5% of all patients showed incidental evidence of wide metastasis.



Location of 102 malignant colonic tumors.

Microscopic Examination: In all but 3% of the patient group the diagnosis was confirmed microscopically, with adenocarcinoma being reported in all but six individuals. On a scale of four, 63 of 73 patients were shown to have tumors of Grade 2 anaplasia or differentiation. In 90 patients from whom gross specimens were available, the tumor had penetrated all coats of the gut wall in two-thirds. In 74 patients from whom tissue was available, extension to lymph nodes occurred with an incidence of 60%; extensive involvement of many nodes was reported in 31%.

It is discouraging to learn that 60% of the entire patient group were known to be dead 24 months after the close of the period under study. On the other side of the ledger, survival of 40% from this unselected group of all proved large bowel neoplasms is better than might be expected from many another type of malignant tumor. The statistical records from this institution show that of 303 patients with carcinoma of the rectum and 170 with carcinoma of other segments of the colon, followed sufficiently long to determine five year survival, 24.4% of the former and 28.8% of the latter were alive at the end of five years after the discovery of the lesion. Here again the figures are raw, including all patients regardless of stage of advancement of the lesion.

The bulk of the patients in this group received no direct treatment of their tumors before admission to this institution. Two per cent had undergone segmental resection operations; 9% had been irradiated.

Therapy and Prognosis: Diagnosis having been established in this group of 102 patients, surgical removal was attempted in the case of 76, with 47 abdominal-peroneal, 25 segmental, and 4 local resections. Palliative treatment in the form of colostomy for the relief of obstruction was carried out in 14, while in 12 no treatment whatever was attempted. At operation peritoneal implants of the tumor and frank metastasis to other organs were observed in 28 patients, while direct invasion of neighboring structures was seen in 20, and the suspicion of lymph node involvement was recorded in an additional 13. Thus, in the case of 61 patients the lesions could be considered to have attained far-advanced stage at the time of surgical intervention. This means that, of 90 patients subjected to surgical procedures, successful handling could be expected only in 29.

In the light of subsequent developments the detection of a palpable mass on external abdominal examination is grounds for a gloomy prognosis. In this entire group of patients, a frankly or equivocally palpable mass was reported in physical examination in 21 instances. In these the lesion was found to have involved all coats of the gut in 17. At the end of two years following the study, 16 patients were known to be dead. Signs of invasion or metastasis to other organs were observed on operation in 13 and multiple node involvement was demonstrated in 9.

Location of Lesion: The patient's admission of "change in bowel habits" was found to be entirely unrelated to the anatomical location of the tumor, whereas ribbon stools reported by patients in 14 instances were related to lesions of the rectum and sigmoid in 13.

Of 70 tumors observed on sigmoidoscopic examination, 57 were located in the rectum, 9 in the lower half of the sigmoid, and 4 above midsigmoid. Tumors detectable on digital examination were within the rectum in 51, in the lower sigmoid in 7, and in a single remarkable instance above the midsigmoid. Profuse bleeding through the rectum was associated with sigmoid and rectal lesion in 67 of 70 patients. In 32 of 35 patients with ribbon stools the location of the tumor was in the rectum and sigmoid, while 9 out of 10 times when the symptom of alternating constipation and diarrhea was reported the disease was confined to the lowermost segments of the large intestine.

COMMENT

The important clinical dividends of x-ray examination of the large intestine are numerous, not the least of which are the reliable appearances of normalcy in patients who for one reason or another are suspected of harboring significant colonic disease. Approximately 25% of all patients subjected to x-ray examination of the colon may be expected to show some recognizable deviation from the allowable normal. Findings in this category cover a wide range of situations, the most numerous single entity being diverticulosis, commonly restricted to the upper reaches of the sigmoid. Although diverticulosis is usually considered to be a bland and a relatively insignificant deviation from normal, documentary proof of its existence is of value in outlining the care of the patient, and is of particular importance when it is associated with inflammatory disease of the neighboring gut wall. In matters of initial diagnosis, evaluation, and subsequent treatment, x-ray investigation is invaluable in the case of ulcerative colitis. Fortunately, the diseases properly grouped in this category occur with relative infrequence although the symptoms ordinarily associated with the situation are by no means uncommon.

Roentgenologic methods of examination play a very important part in the discovery, the localization, and the determination of individual characteristics and the extent of primary malignant tumors of the large intestine. In no wise to be considered a competitor of the more direct procedures of digital examination and sigmoidoscopic exploration, roentgenologic methods should be employed as an adjunct, even in the case of rectal tumors which are readily accessible from the exterior, in order that the status of the colon at higher levels may be determined prior to treatment. Above the midsigmoid level, where digital examination is no longer serviceable and where sigmoidioscopic approach has only limited value, it remains for x-ray methods to bear the main burden of detection and correct diagnosis. The more reliable symptoms and physical signs are to be found in those instances where direct examination through the rectum is most effective, and one reliable physical finding, externally palpable abdominal mass, is almost always an ominous indication of advancement of the disease to the hopeless stage.

A Great Physiologist.—Starling, teaming up with Bayliss, corroborated Pavlov's finding that the movements of the intestine were controlled by the autonomic nervous system. They then turned to the question of the secretion of juices by the pancreas. Were these secretions also controlled by nerves? Pavlov's work suggested that they were, and Bayliss and Starling set out to try to prove this hypothesis. But they made a completely unexpected discovery, in a historic experiment, which had shown, and Starling had instantly realized, that the body possessed a chemical means of communication—a blood-borne chemical signal which, like a nervous impulse, could trigger an organ into action. Starling and Bayliss soon identified this chemical and gave it the name secretin. They found that it came from the wall of the intestine. When acid from the stomach enters the intestine, it causes the wall to liberate secretin. The substance then travels in the blood stream and stimulates the pancreas to pour out the pancreatic juices that aid in the digestion of food. Secretin was not the first internal secretion to be discovered; physicians were already acquainted with adrenalin, thyroid extract and some of the other powerful substances produced by the glands. But Starling was the first to grasp the master role that these substances played in the communications and regulation of the body, and it was he who gave them the general name of hormones—a word suggested by one of his fellow workers.—Ralph Colp Jr., Ernest Starling, *Scientific American*, October, 1951.

POSTPHLEBITIC AND VARICOSE VENOUS STASIS

CLINICAL RESULTS OF TREATMENT BY PULSATILE AIR-PRESSURE PRINCIPLE

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A disturbance in the return of venous blood and lymph from the subcutaneous region of the lower part of the legs is one of the commonest pathological conditions found in man. This expresses itself usually in one of two ways, namely, varicose veins or postphlebitic lymphedema. It is difficult to obtain precise figures for the incidence of these conditions, but any physician who treats adult patients knows the extreme frequency of their occurrence. In a survey of 1,000 young industrial employees, it was found that 10% had definite varicose veins. In an older group of department store employees, all over 40, the incidence had risen to 40% among the men and 70% among the women.[1] The corresponding figures for postphlebitic lymphedema cannot be cited, but this is an extremely prevalent condition.

VARICOSE VEINS

In the development of varicose veins the superficial veins enlarge because of the incompetence of their valves. Thus, in the erect position these veins support a column of blood from the heart to the lower part of the leg. The enlargement of the veins is relatively unimportant, but the increased orthostatic pressure and stasis in them slows the normal capillary circulation and greatly increases the pressure within the capillaries. As a result of these two factors capillary function is seriously interfered with. There is excessive loss of fluid from the blood stream to the extracellular spaces. The accumulation of protein-rich fluid and the impairment in the exchange of oxygen and metabolites lead eventually to local induration, pigmentation, and ultimately may result in the development of the typical stasis ulcer.

Varicose veins are always associated with a destruction or incompetence in their valves. However, there are two types of such valvular dysfunction. In the first type only the valves in the main stem veins of the saphenous systems are incompetent. The communicating veins (called perforators), which join the superficial and deep system of veins in the lower part of the leg, have valves which normally allow blood to flow only from the superficial to the deep veins. The valves in these perforators are competent in this first type of dysfunction. This is readily demonstrated by the Trendelenburg test. After emptying the veins by elevation of the extremity, they fill almost instantly on the patient's standing up. But with compression of the subcutaneous veins by a tourniquet applied lightly to the thigh, if the perforators are competent the refilling of the veins requires 30 seconds or more, as it does in the normal person. In cases of the second type of dysfunction, namely, incompetent perforating veins, the filling is rapid in spite of the compression of the superficial veins. In this case the perforating veins now allow the filling of the superficial veins from the deep veins. Such differentiation on the basis of the competence or incompetence of the perforating veins is of extreme clinical importance. In cases of the first type (competent perforators), the harmful effects of the venous stasis can be easily remedied by ligating the main superficial venous trunk (the great saphenous vein and in some cases also the lesser saphenous vein) above all branches. With competent perforators the blood in the superficial veins is drawn into the deep veins by the pumping action of alternate contraction and relaxation of the muscles in the lower part of the leg. In cases of the second type of dysfunction, however, in which there is gross incompetence of the valves of the perforating veins, the venous stasis is not permanently benefited by such ligation. The incompetent perforators no longer check the full hydrostatic pressure when the patient stands from being passed on to the superficial veins. Muscular action now only causes a to-and-fro motion of the blood through the perforators rather than a cyclical flow from the subcutaneous into the deep veins. The superficial veins have lost this most important method of moving the blood upward against the force of gravity.

POSTPHLEBITIC LYMPHEDEMA

In the acute stage of a case of femoroiliac thrombophlebitis, a clot forms in the femoral vein, but the inflammatory process also involves the deep veins in the lower part of the leg. In the severe cases, which result in a chronic postphlebitic lymphedema, the valves of the perforating veins of the lower part of the leg are injured by the inflammatory reaction. At first the symptoms are due to obstruction of the superficial or common femoral vein, the inflammatory reaction in the veins, and probably a reflex sympathetic vasoconstriction affecting the arterioles. After the subsidence of the acute symptoms, the venous obstruction is gradually overcome by the development of collateral venous channels and usually the canalization of the organized thrombus. Arterial vasoconstriction disappears, and the residual difficulty is primarily due to the destruction of the valves in the perforating vessels. The end stage in such severe cases is again then exactly the same as in cases of the second type of varicose veins, namely, an incompetence of the perforating veins resulting in a serious venous stasis in the superficial veins of the lower part of the leg. In addition, there may also be a partial obstruction to the lymphatic return due to involvement of the main trunk lymphatics in the inflammatory reaction surrounding the femoral vein at the time of the acute thrombophlebitis. Often the superficial veins do not show the obvious enlargement that is seen in cases of primary varicose veins. This

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[1] Lake, M.; Pratt, G. M., and Wright, I. S.: Arteriosclerosis and Varicose Veins: Occupational Activities and Other Factors; Study of 536 Persons, Divided into Age Groups, Who Had Been Sitting, Standing, Walking or Climbing Stairs for 10 Years or More at Their Work, J. A. M. A. **119**: 696 (June 27) 1942.

is frequently due to fibrotic changes in the wall of the vein or in the surrounding subcutaneous tissue produced by the inflammatory process, the so-called "thick walled" varicose vein in contradistinction to the thin-walled type that develops without inflammatory reaction in spontaneous varicosities. The primary pathological physiology of the postphlebitic lymphedema is an orthostatic venous stasis sometimes combined with a partial obstruction to the lymphatic return. If the lymphedema continues unrelieved, subcutaneous induration, pigmentation, and ulceration are likely to follow in the course of time.

TREATMENT OF VENOUS STASIS

The problem in treatment is to overcome the harmful effect of the orthostatic venous hypertension and stasis and the associated lymphedema. Before treatment is started it is of paramount importance to determine whether these factors are due only to incompetence of the main stem veins or whether there is a major degree of incompetence of the perforating veins. If the incompetence is limited to the valves of the greater saphenous system proper and does not involve the perforators, then high ligation of the great saphenous vein near its junction with the femoral and above all of its branches will overcome the venous stasis and will prevent the resultant train of serious sequelae. If the varicosities have become sufficiently enlarged, the veins may not return to their normal caliber, and excision or sclerosing injections may be desirable for cosmetic reasons but are not necessary for overcoming the venous stasis. However, when a major degree of incompetence of the perforators exists, then such ligation will achieve little or no benefit to the underlying venous stasis. Although the orthostatic reflux of blood into the saphenous system through its main trunk is blocked, such filling occurs immediately through the enlarged and patent perforators, and the powerful pumping action of muscular contraction no longer is effective in emptying the superficial veins. In any severe case of postphlebitic lymphedema, it can be assumed that the perforators are grossly incompetent.

Many attempts in the past have been made to overcome venous stasis associated with incompetent perforators. These measures fall into three groups: (1) external compression, (2) sclerosing venous injections, and (3) ligation of the incompetent perforators together with high ligation of the saphenous trunk.

External Compression.—There have been many different forms of external compression—elastic bandages, elastic stockings, gum-rubber bandages, plain or elastic adhesive-tape strapping, and the Unna paste boot are the ones which have been most helpful. They all have one primary defect, namely, that the lower part of the leg is not spherical in its cross section (especially in its lower third) so that uniform compression cannot be obtained; also, the method of application is not uniform so that the same degree of pressure is not attained at all times. In order to obtain a more uniform pressure, some spongy material may be used under a tension bandage, the most popular one being sponge rubber. In this way a more nearly uniform pressure is obtained just above the ankle where stasis ulcers are most likely to occur.

Sclerosing Venous Injections.—Injection of the veins with a sclerosing solution will produce a clot which, if it completely occludes all incompetent perforating veins, will give temporary relief. There are three serious objections to this method however: First, the occlusion of the perforating veins is frequently incomplete. Second, even when occlusion is complete, canalization of the organized thrombi usually occurs. Third, the reaction to the thrombosis may still further injure the valves of perforators which were only partially incompetent. This method of sclerosing injections has enjoyed great popularity in the past on account of the temporary improvement that usually followed it. But on occount of the defects previously mentioned, it has today been largely discarded as the preferred method of treatment for venous stasis associated with incompetent perforators.

Ligation of Perforators.—There are varying degrees of incompetence of the perforating veins. When such incompetence is not too severe, ligation of the chief incompetent perforating veins together with high ligation of the great saphenous vein may give a good clinical result. However, when there is a major degree of incompetence of the perforators, such limited ligation of individual and large perforators is practically valueless for a permanent effect. Other incompetent perforators rapidly enlarge, and within a very few months the venous stasis is as severe as it was previously. From surgical experience this was gradually learned, and the surgeon became more and more radical in his attempt to divide incompetent perforating veins. Even stripping out the entire length of the great saphenous vein from the groin to the ankle does not permanently interrupt the incompetent perforators. The operation of quadrant dissection from the knee to the foot with the ligation of all visible perforating veins directly on or under the fascia is the ultimate in such a surgical attack. Such a major procedure is the only operation worth any consideration in the treatment of the severe forms of postphlebitic and varicose stasis when associated with major incompetence of the perforating veins. There are two objections to such a major procedure: First, such a widespread dissection in tissue whose lymphatics may harbor bacteria can result in rather serious wound infections. Second, even with this very extensive surgical dissection it is questionable whether all perforators, particularly those at the junction of the sole with the lateral margins of the foot, will be ligated.

In summary then, all previous methods of treatment have had serious defects, and many of the severe cases of venous stasis have not been checked by them. This point is well illustrated by the backlog of such cases that any large vascular clinic has—patients who have been returning regularly for many years with recurrent or continuing stasis ulcers, induration, stasis dermatitis, and repeated attacks of recurrent cellulitis.

When this problem was confronted in 1938 after the standard methods of compressive dressings, sclerosing injections, and a widespread dissection of the perforating veins had failed to prevent the recurrence of a postphlebitic stasis ulcer, it was decided to apply a regulated air pressure over the lower part of the leg. This was done by constructing a legging of an inelastic material containing an inflatable rubber bladder, which was pumped up after the legging was put on the leg. Then not only is there applied to the skin a controlled and uniform pressure throughout the extent of the rubber bladder, but also when the patient walks there is a rhythmical rise in the pressure with each contraction of the muscles. The legging is constructed according to this principle of pulsatile air pressure ("aero-pulse" principle). In essence, a substitute for the deep fascia has been placed outside the skin and subcutaneous tissues, and the powerful pumping action of muscular contraction compressing the veins and pushing the blood upward against gravity is applied by this means to the superficial veins throughout the lower part of the leg. After some experimentation as to the optimum pressure in the first very difficult case, this method of treatment resulted in the complete healing of the ulcer without interruption of the arduous use of the leg at any time. During the next 10 years in several other patients who had failed to respond to the standard methods of treatment the disease was also successfully controlled by this air-pressure method. The chief objection to the application of the method was the difficulty in having the legging made. In 1948 such a legging became available commercially,[2] and since that time my series of patients with venous and lymphatic stasis treated by this method has increased to over 350. The preliminary report on the results obtained in the first 50 cases was published in 1949.[3] The further experience with this method justifies drawing certain definite conclusions concerning its results.

RESULTS OBTAINED WITH TREATMENT BASED ON THE PULSATILE AIR-PRESSURE PRINCIPLE

Swelling.—The swelling due to postphlebitic or varicose stasis in the lower part of the leg can be adequately controlled. Acute inflammatory swelling, on the other hand, is not always controlled by the air pressure. Consequently, if there is a component of the swelling due to cellulitis or other infection, the infectious element may have to be controlled by the usual methods before the stasis lymphedema can be adequately overcome. However, if the infection is not too virulent, it has been found that it will frequently subside spontaneously while the patient is ambulatory after the legging has been applied. As a simple rule of thumb, it can be stated that any swelling which will go down overnight will almost surely be adequately controlled by use of the pulsatile air-pressure principle. This has been found to be true in my series of 220 cases of stasis lymphedema, whether the swelling was postphlebitic or due to varicosities with incompetent perforators.

Induration.—Induration of the skin and subcutaneous tissues is a characteristic feature of the latter stages of venous stasis in the lower part of the leg and is often accompanied by pigmentation of the skin. This induration is due to a chronic reaction in the tissues leading to a gradual formation of fibrous tissue and is often the seat of a chronic cellulitis or of recurrent acute inflammatory episodes. It is also frequently the precursor of an obstinate stasis ulcer. In many of the patients with postphlebitic lymphedema a rather marked degree of induration had already developed before treatment with the pulsatile air-pressure ("aero-pulse") legging had been initiated. The subcutaneous tissues were hardened and the skin thickened and corrugated. This condition does not respond quickly to treatment with the pulsatile air-pressure legging as the lymphedema does, but gradually there is a softening of the subcutaneous induration, the skin becomes smoother and more pliable and obviously in a better state of nutrition. Even the pigmentation of the skin may become lighter. The fully formed fibrous tissue probably never disappears, but the extent to which these chronically indurated areas could become softened after 6 to 12 months treatment with the pulsatile air-pressure legging has been a most agreeable surprise. In most patients with severe long-standing lymphedema some degree of induration has developed. Forty-three were chosen out of this series as showing an extensive degree of induration as a major characteristic. All of these patients showed a marked improvement in the extent and degree of induration.

Ulcers.—Postphlebitic and varicose ulcers in the lower part of the leg are regularly healed while the patient is ambulatory. The granulating base rapidly takes on a healthy red appearance, the surface infection of the ulcer is usually overcome without any additional treatment, the granulations fill the concavity of the ulcer, and the epithelium then rapidly grows across this flat surface. The only exceptions which I have found to this rule are the following:

Ulcer Base Unable to Support Epithelium: In many instances the ulcer base has appeared to be such thick scar tissue that it would never support epithelium. However, though the healing of such fibrotic ulcers may be slow, in only two instances have such stasis ulcers failed ultimately to heal. Ulcers that have been open for 5 to 15 years have finally healed firmly without excision of the ulcer base or grafting. In one case the ulcer base was directly on the tibia so that granulations could not develop. The edge of the ulcer started to grow nicely, but its center remained open because the base was formed by the periosteum. This ulcer was promptly healed and has stayed closed by the application of a split thickness graft and the use of the pulsatile air-pressure legging as soon as the patient was mobilized. This patient had been grafted twice before, with a successful result while she remained in bed but with rapid reulceration on mobilization. The last graft would undoubtedly have suffered the same fate if the element of venous stasis in the surrounding tissues had not been controlled by the legging.

Virulent Surface Infection: In about 5% of the cases of stasis there is a virulent surface infection which has to be brought under control before the ulcer will start healing. If the granulations do not promptly become healthy or in some cases if the granulating surface of the ulcer appears quite necrotic, appropriate treatment for the infection is started immediately. In many of these cases—whatever organism is isolated on culture—the infection will frequently respond to the use of bacitracin. Usually the infection can be controlled without the patient being off his feet, but occasionally before the ulcer will improve it is necessary for the patient to stay in bed to get the infection under control. A very virulent fungus infection is also a complication which has occasionally required active treatment before the use of the legging can be started. Usually, however, use of simple fungicidal methods are adequate while the patient is ambulatory and wears the legging. This point will be discussed more fully under the complication of dermatitis.

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[2] This appliance is manufactured under the name "aero-pulse" legging by the Surgical Research Corporation, Albion, N. Y.

[3] Scott, W. J. Merle, and Radakovich, M.: Venous and Lymphatic Stasis in the Lower Extremities; I. A Test for Incompetence in the Perforating Veins; II. A Simple Method of Adequate Control, Surg. 26: 970, 1949.

Local Complicating Factor Producing Inflammatory Edema: As previously stated, inflammatory edema may not be overcome adequately by the air-pressure effect. If there is an extensive cellulitis surrounding the ulcer, treatment of the inflammatory condition may be necessary before the venous stasis will be controlled locally and the ulcer will start to heal. Also, occasionally a localized thrombophlebitis in a vein beneath or near the ulcer may cause inflammatory swelling that will temporarily prevent the healing of the ulcer. In exceptional cases even after an ulcer has been healed for a long time by use of the pulsatile air-pressure legging, a small painful area may occur which then breaks down into a small open ulcer—in spite of the continued use of the legging and apparently without any mechanical failure. In two such instances a tender, thickened cord was felt under the area which disappeared within about three weeks, and the ulcer then healed again promptly. Apparently this was a localized phlebitis in one of the dilated veins in the region of the ulcer causing an inflammatory reaction that temporarily made the air pressure ineffective at that point. However, in only one such instance has such a local superficial phlebitis prevented the patient from continuing to be ambulatory. In four cases there has been a flare-up of a previous widespread cellulitis after the ulcers have healed, and the patients were apparently using the legging properly. In all of these cases the cellulitis had been severe and recurrent before the initiation of the treatment, with a marked induration of the surrounding subcutaneous tissues at the time treatment was started. Undoubtedly under these conditions bacteria are still present for many months in the scar tissue, and until they disappear they may cause a recurrence of the cellulitis even while the venous stasis is being properly controlled. This is one very important reason for controlling stasis lymphedema before the onset of recurrent attacks of cellulitis. All of these recurrent attacks during treatment occurred within a year after the use of pulsatile air-pressure legging was started. Apparently the likelihood of such recurrences of cellulitis is greatly reduced after adequate control of the venous stasis for several months.

Rubber Sensitivity: In a few instances after the legging has been applied and the immediate response has been good, there has developed, usually suddenly, a severe reaction of the skin around the ulcer, the skin becoming a deep-red color and the ulcer itself becoming inflamed. We have encountered three such cases, in each of which the skin was found to be extremely sensitive to rubber. After the reaction subsided, protective measures to insulate the rubber bladder from any indirect contact with the skin were initiated, and the ulcers healed promptly. Several other cases of milder rubber sensitivity have been found in which the skin directly under the rubber bladder became reddened and itched; this reaction also disappeared on the prevention of any indirect contact (through moisture) with the rubber of the bladder. My colleagues and I now inquire in all instances concerning rubber sensitivity and if necessary carry out a patch test of the patient's sensitivity to rubber. When there is only a mild sensitivity, it is usually sufficient to have the patient wear a woven-cotton bandage applied without stretch under the legging. When there is marked sensitivity, the bladder has been enclosed in a plastic envelope to completely insulate it from the skin.

Eczematoid Dermatitis: Dermatitis is a frequent complication of a stasis ulcer. When this takes an eczematoid form with extensive weeping, it may be impossible to apply the legging immediately. Although the dermatitis is kept up by the venous stasis and the legging effectively controls the latter, the slight increase in warmth under the legging and the decreased evaporation from the skin favors a flare-up of the eczematoid dermatitis. By the use of a woven-cotton bandage worn under the legging without stretch, merely to allow some evaporation and absorption of fluid, the patient with less severe eczematoid dermatitis can usually begin the use of the legging at once. Patients with severe eczematoid dermatitis require active treatment of the weeping phase before the legging can be tolerated. Bacterial or fungus infection must be combated actively by appropriate methods. A few of the patients with the severest form of eczematoid dermatitis require in addition a period of bed rest. This, however, is the exception. For patients with severer eczematoid dermatitis the leg is acclimated gradually to the use of the legging (it being worn for an hour at a time after which the skin is exposed to the air), and the various adjuncts to treatment are used. In only three cases, however, has the use of the legging been permanently discontinued on account of an intractable eczematoid dermatitis, and in these instances its use was discontinued by the patients after inadequate trial. Stasis dermatitis is frequently a very resistant complication of venous stasis, which frequently tries the patience of both the victim and the physician. This is occasionally true even when the venous stasis is controlled by the use of pulsatile air-pressure legging. However, if the weeping phase can be controlled, the stasis dermatitis, resistant to all forms of treatment while the stasis continued, can be cleared up.

Of 105 stasis ulcers in the lower part of the leg, 89 have been soundly healed by treatment with pulsatile air-pressure legging. With a large proportion of these ulcers this result had failed to be achieved by the standard methods of treatment, and many of them had not been firmly healed for at least three years. When a stasis ulcer fails to start healing promptly after application of pulsatile air-pressure legging, unless one of the above-mentioned factors is present to retard healing serious doubts should be entertained as to the accuracy of the diagnosis. Other causes of chronic ulcer of the lower part of the leg may be operative in the presence of varicosities. Certain specific infections (bacterial and mycotic), neoplastic infiltration of the skin, ulcers due to blood dyscrasias and to arteriosclerosis are among the commoner causes of lesions that might be mistaken for stasis ulcers.

PRECAUTIONS IN TREATMENT WITH PULSATILE AIR-PRESSURE LEGGING

Mechanical Faults.—The benefit from use of the legging depends on the air pressure exerted against the skin and subcutaneous tissues. The optimal amount of pressure has been learned empirically to be about 35 mm. of mercury in nearly all cases. Pressures considerably above or below this optimum will vitiate the beneficial result, and an excessive pressure may be actually harmful. There are two common faults whereby the proper pressure is not obtained: (1) incorrect fitting and (2) incorrect inflation of the legging.

Incorrect Fitting of Legging: The outer casing of the legging is inelastic. It necessarily has to be so in order to serve its function as an artificial external fascia. This casing must be large enough so that the rubber bladder when inflated will contain an air pocket at least ½ in. (1.3 cm.) wide throughout its length. If the legging is fitted too snugly so that such an air pocket is not obtained when the bladder is inflated, an excessive pressure may be present at some point. On the other hand, greater width of the inflated rubber bladder does no particular harm. It merely makes the leg appear unnecessarily large. In measuring for the legging one includes allowance for the space to be taken by any dressings, woven-cotton bandage, and so forth. The legging should be checked after its inflation to make sure that the air pocket is of sufficient breadth. For example, the casing should never press directly on the dressings over an ulcer.

Incorrect Inflation of Legging: The inflation of the legging to the optimum pressure is achieved by a pressure regulator on the inflator, which automatically gives the predetermined pressure. The mechanism is quite simple and can easily be operated by the patient. The patient should be checked as to his method of inflation to make sure that the proper pressure is being obtained. Over- or underinflation will prevent reliable results being obtained.

Topical Treatment of Ulcer.—Practically any local treatment desired can be applied in conjunction with the control of the venous stasis by use of the pulsatile air-pressure legging. Usually no special local treatment of the ulcer is necessary. If an ointment is used, the dressing should be covered by a square of some impervious material, such as cellophane, to prevent the grease of the ointment from working through the dressing to the rubber bladder.

An increase in watery discharge from the ulcer frequently occurs for a few days when the pulsatile air-pressure legging is first applied. This occasions no concern; in fact, it is probably beneficial in helping to clear up the surface infection. It is probably only a manifestation of the way in which the air pressure drives out the excess extracellular fluid in the tissues. The dressings should, however, be changed frequently enough so that they will be able to absorb all such fluid. After the first three or four days the surface usually appears cleaner, the granulations brighten up, and fluid exudation decreases.

Fungus Infection.—Some fungus infection is a frequent complication of a stasis ulcer or lymphedema. It may be observed as a patchy scaling of the skin that only occasionally flares up, or it may be a very obvious and extensive fungus dermatitis. On account of the prevalence at least of such fungus contamination of the skin, some simple measure of fungus control is usually instituted when pulsatile air-pressure legging is used. In my series of cases zincundecate (desenex®) powder was usually prescribed for such prophylactic fungus control. The treatment of a severe fungus dermatitis may tax the medical ingenuity of the physician. It should always be attacked vigorously until controlled.

Moisture.—Unabsorbed moisture should never be allowed to accumulate on the skin. This problem usually occurs in conjunction with an eczematoid dermatitis, either as the chief manifestation of the venous stasis or as a complication of a stasis ulcer or lymphedema. If the weeping is not too severe, the moisture may be absorbed by a woven-cotton bandage of the pressure (ace®) type applied without stretch under the legging. This bandage should be changed as frequently as necessary to keep the skin fairly dry. As in the case of ulcers, there may be a mechanical increase in the outpouring of fluid during the first few days. If, however, the patient can be helped over this initial period without an exacerbation of the dermatitis, the beneficial effect of overcoming the venous stasis may cause a gradual improvement in the dermatitis, with its eventual control as the gratifying result.

In the severer cases auxiliary methods should be employed, such as the use of dilute potassium permanganate soaks, methylrosaniline chloride (gentian violet) applications, fungicidal agents, and so forth. The skin may require acclimatization to the legging by alternating hourly periods of its use and exposure to the air.

While eczematoid dermatitis is the most frequent cause of trouble, with moisture accumulating under the legging, in some instances an excessive perspiration may cause a skin eruption. Use of absorption methods will usually control this difficulty. In excessively hot weather for a few patients periods of drying the leg in the air may be required. In general, the legging is usually well tolerated even in hot weather by most patients. There is much less difficulty with the legging from this than from the use of gum-rubber bandages, for example.

CONTINUANCE OF USE OF LEGGING

The pulsatile air-pressure legging is only a mechanical appliance which overcomes the venous stasis while it is in use. Usually the damage to the valves in the varicose veins or in the postphlebitic state is a permanent one. Therefore, the venous stasis will return on discontinuance of the use of the legging. Patients have to be energetically warned of this fact since the prompt healing of the ulcer and relief of all symptoms frequently induces in them a false sense of security, and they discontinue all treatment. For a time the improved condition of the skin may withstand the harmful effects of the untreated venous stasis, but if the incompetence of the valves is a major one, the serious sequelae of the uncompensated venous stasis are almost sure to return. After the ulcer has healed, the induration receded, and the nutrition of the skin has been improved, usually the patient can be allowed to go without the legging 10 to 25% of the time he is up and about on his feet. Of course, the legging can be taken off at any time when the patient is willing to keep his foot elevated to body level.

REPORT OF CASES

Case 1.—In a 46-year-old automobile mechanic, W. P., a thrombophlebitis developed in the left leg in 1947 after an injury. Since that time he has had postphlebitic lymphedema in the left leg, and a few months after the phlebitis occurred an ulcer of the lower part of the left leg developed, which has remained open since that time. Aching pain in the ulcer was a prominent and disabling feature. In January, 1951, the ulcer was approximately 7 by 5 cm. in its diameters and 0.5 cm. deep. Surrounding the ulcer was an area of stasis dermatitis with moderate induration. There were visible varicosities in the left leg with markedly incompetent perforators. The patient had used various types of compressive dressings and paste boots without avail. On Jan. 5, 1951, the pulsatile air-pressure legging was applied. Two weeks later the ulcer already showed marked improvement, with considerable filling in of the base with healthy granulations and good beginning growth of epithelium at the edge of the ulcer. Six weeks after this treatment was started the ulcer was painless and was approximately one-third its original size. The patient had returned to his regular occupation. The ulcer was completely healed in approximately three months, and the stasis dermatitis and induration surrounding it had disappeared; the lymphedema was adequately controlled.

Case 2.—W. B., a housewife, 73, had a severe attack of thrombophlebitis in the right leg 27 years ago, which was followed shortly afterwards by the occurrence of thrombophlebitis in the left leg. She had always had a lymphedema of the right leg since the occurrence of the thrombophlebitis, but the swelling of the left leg receded to reappear 10 years ago. Stasis ulcers of the right leg developed eight years ago. At first these would heal and break down again with the use of compression dressings. For the last four years the ulcers of the right leg have remained open, except for a period of 10 weeks when the patient was put at complete bed rest and the ulcers were healed. They promptly broke down again in spite of the use of compressive dressings, and they now are completely incapacitating the patient. The left leg went through a similar cycle, and the ulcers on this leg have remained open for the last two years. In March, 1950, the patient had four stasis ulcers on the lower part of the right leg and three on the left. Three of these ulcers were very deep, directly over the tibia, and apparently dead bone formed the base of the ulcer. Pulsatile air-pressure leggings were applied to both legs on March 17, 1950. In one month granulations appeared at the base of the ulcers except when this was on the bone, and the skin at the edge of the ulcers had already begun to grow. Two months after treatment the smaller ulcers had nearly healed; six months after treatment was started the ulcers of the left leg had completely healed, the smaller ulcers of the right leg had healed, but two larger ulcers had filled in with granulations through which small sequestra of bone made their way. One year after treatment was started all ulcers were healed except for two small crusted areas less than 0.5 cm. in diameter through which small spicules of dead bone still occasionally were extruded. After the remaining small fragments of dead bone are extruded, these ulcers will undoubtedly also heal.

Case 3.—D. M., a housewife, aged 30, was in the sixth month of her fourth pregnancy. Varicose veins developed during her first pregnancy and increased in size during each succeeding pregnancy. After delivery the distention of the varicose veins receded somewhat. An ulcer first appeared in the lower part of the right leg one month previously. It had become very painful and failed to heal in spite of the use of elastic compression dressing. Examination showed a pregnancy of about the sixth month and marked varicose veins in the lower part of both legs. On the inner aspect of the lower part of the right leg there was an open ulcer about 1 in. (2.5 cm.) in diameter, with a purulent base and surrounded by a large area of marked inflammatory reaction. A pulsatile air-pressure legging was applied on May 17, 1949. The inflammation and pain began to subside within three days, and the ulcer was completely healed within three weeks.

Case 4.—In F. R., a trained nurse, 71, bilateral thrombophlebitis developed in the left leg in 1946 after a fracture of the left patella. Shortly after the phlebitis occurred, an ulcer developed above the left external malleolus on the lower part of the left leg, which was treated by use of an Unna paste boot and healed. Six months later stasis dermatitis with an ulcer in the lower part of the right leg and swelling developed. An Unna paste boot was applied but had to be removed on account of pain. The patient then had a bilateral high saphenous vein ligation. After this, with the aid first of treatment with pressure bandages and then elastic stockings, the ulcer of the right leg healed completely by February, 1948, but recurred four months later. After sclerosing injection of the vein it healed slowly, and the patient returned to work in two months. In May, 1950, she had a recurrence of an inflamed, indurated tender area above the left internal malleolus, which was treated with use of a well-fitting elastic stocking. In spite of this, a painful ulcer developed in this region on the left. After sclerosing injection into the vein the ulcer appeared better for two weeks and then broke down again in spite of sponge-rubber pads, new pressure bandages, and so forth. On Oct. 17, 1950, pulsatile air-pressure legging was applied to the left leg, and within one week the ulcer had completely healed and the patient had returned to work. Two months later the skin over the ulcer area was of normal color, of good texture, and no longer painful and has remained so.

Case 5.—J. M., a retired police officer, 61, had had bilateral varicose veins for many years. Five years previously he had an injury to the left shin and ever since then has had recurrent ulcers in this area which would never heal solidly. He had a second accident to approximately the same area two and one-half years previously that was followed by persistent swelling of this leg. A large, painful ulcer had developed on the anterior aspect of the lower part of the left leg with an acute cellulitis in the region surrounding it. In spite of repeated sclerosing injections of the varicose veins and the use of elastic stockings and pressure bandages, it had been impossible to keep these ulcers healed, and the acute inflammatory reaction was incapacitating him. Examination showed one large ulcer and multiple smaller excoriations in the lower part of the left leg with a surrounding zone of induration and acute inflammation. Large varicose veins were present with grossly incompetent perforators and lymphedema of the of the lower part of the left leg. A diagnosis of stasis and postphlebitic ulcer with postphlebitic lymphedema and induration and varicose veins with incompetent perforators was made. A pulsatile air-pressure legging was applied on Sept. 30, 1949, which resulted in prompt relief of pain. Treatment was interrupted by a sensitivity reaction to rubber, but the ulcer had healed by Nov. 12, 1949, and the inflammatory reaction had entirely subsided. The ulcer has remained healed to date (21 months later), and the postphlebitic lymphedema and induration has been completely controlled.

Case 6.—B. B., a housewife, 59, had typhoid fever at the age of 21 complicated by a thrombophlebitis of the left leg. Ever since that time she has had swelling of the left leg, which increases during the day and goes down overnight. Most of the past 22 years she has had an ulcer on the lower part of the left leg. This has been treated with various forms of compression bandages and operations, including ligation and seven skin graftings. In spite of this treatment the ulcer has constantly recurred. The longest period in which it remained healed was one and one-half years. It has remained unhealed for the last five years. Examination revealed swelling of the lower part of the left leg and marked varicose veins with incompetent perforators. A painful ulcer with a dirty purulent base about 7.5 x 4 cm. was present on the inner surface of the lower part of the left leg just above the ankle. A diagnosis of postphlebitic ulcer and lymphedema was made. A pulsatile air-pressure legging was applied on July 22, 1949. Marked improvement with loss of pain occurred within three weeks, and the ulcer was completely healed for the first time in five years six weeks after this treatment was started. To date (22 months later) the ulcer has remained healed, and the induration in its base has subsided.

Case 7.—H. F., a commercial artist, 45, three years previously experienced a sudden occlusion of the right popliteal artery, probably from a thrombosis on an atheromatous plaque. Shortly after the arterial occlusion occurred, bilateral femoral thrombophlebitis developed. Since that time the patient has had marked intermittent claudication from the arterial occlusion and postphlebitic swelling in the lower part of both legs. In August, 1948, an indurated area just below the right ankle developed, which broke down into two open, indolent ulcers in February, 1949. These failed to heal with the use of compression bandages. There was no pulsation below the femoral artery of the right leg. A diagnosis of occlusion of the right femoral artery and postphlebitic ulcer of the lower part of the right leg was made. On July 22, 1949, pulsatile air-pressure legging was applied to the right leg. This effectively controlled the postphlebitic swelling and produced a healing of the open ulcers within three weeks. There was no appreciable effect on the intermittent claudication due to the impairment of arterial flow.

CONCLUSIONS

In cases of varicose veins the competence or gross incompetence of the perforators is of fundamental clinical importance. If the perforators are competent, high saphenous ligation will overcome the venous stasis. In cases of severe postphlebitic lymphedema it can be assumed that the perforators are grossly incompetent and that the orthostatic venous hypertension cannot be overcome by the pumping action of muscular contraction in the lower part of the leg. All previous methods of treating venous stasis with gross incompetence of the perforators have had serious defects. By the application of a regulated pulsatile air pressure to the lower part of the leg, the venous stasis can be overcome. Swelling due to postphlebitic lymphedema or to varicose venous stasis is adequately controlled by this method. Inflammatory swelling is not necessarily adequately controlled. The induration of the skin and subcutaneous tissues, so characteristic of the later stages of venous stasis in the lower part of the leg, gradually recedes. Uncomplicated postphlebitic and varicose ulcers in the lower part of the leg are regularly healed while the patient is ambulatory. Certain local complicating factors which may prevent rapid healing are outlined, and methods are cited for overcoming these conditions. Certain precautions which should be taken in order to obtain satisfactory results with this method of treatment are listed. Application of the pulsatile air-pressure ("aero-pulse") principle in the treatment of postphlebitic and varicose venous stasis has been successful in severe cases, when all previous standard methods have failed.

260 Crittenden Blvd.

PROFOUND ACCIDENTAL HYPOTHERMIA

Harold Laufman, Ph.D., M.D., Chicago

My associates and I had the unusual opportunity of studying a patient who had been subjected to severe freezing conditions. We believe this case to be unique insofar as the degree of hypothermia was more profound than is ordinarily followed by recovery in the human or in most animals.[1] The critical level in humans is unknown, but it is commonly considered to be between 68 and 74 F.[2] Although some nonhibernating experimental animals have recovered from more profound hypothermia than did this patient, their periods of hypothermia were considerably shorter.[3]

CASE REPORT

At 8 a. m., Feb. 8, 1951, a Negro woman, 23, was brought into the admitting room of Michael Reese Hospital. She had been found by policemen about 15 minutes previously in a nearby alley in a frozen coma. The policemen assumed that she was dead because they were unable to detect any apparent respirations. The admitting intern and the admitting surgical resident observed a respiratory rate of 3 to 5 per minute. The apical pulse rate ranged from 12 to 20 per minute. The pulse was highly irregular, with periods of asystole up to 8 seconds. A vein was located in the antecubital area of the left arm and an ampul of caffeine and nikethamide (coramine®) was injected intravenously. The administration of human plasma was begun through this venipuncture. Oxygen was given by mask.

Physical Examination.—I saw the patient for the first time at 9:15 a. m., 75 minutes after admission. She was a moderately obese young Negro woman whose weight was judged to be 150 lb. (68 kg.) and height 5 ft. 4 in. (163 cm.). The patient was in deep coma. Respirations were 16 per minute. The apical pulse was highly irregular but strong, averaging 20 beats per minute with periods of asystole up to 6 seconds. Blood pressure by sphygmomanometer in each arm was zero.

Head: The head could not be moved from side to side except by exertion of considerable force. Furthermore, it was impossible to flex or extend the head. This was due to an extreme ridigity of the neck muscles.

Eyes: The lids were partially open, allowing a palpebral fissure of roughly ¼ in. (0.65 cm). Manual pressure on the eyeballs over the lids revealed an extreme degree of hardness, giving one the impression of pressing on glass. An area of opacity corresponding to the exposed bulbar conjunctiva covered most of the cornea, but the color of the iris could be seen. No blinking lid reflex was present. The pupils were fixed at a diameter of 3.5 mm. and did not react to strong light thrown suddenly into the eyes. A finger tip was placed directly on the cornea to test the corneal reflex. It was found to be absent.

Nose and Ears: The nose and ears were cool, but there was no evidence of frostbite. No abnormalities were present.

Mouth: It was impossible to open the jaws either manually or by attempting to insert bits of various kinds between the teeth.

Neck: The neck was very stiff, and the skin felt cool and could not be dented appreciably by the finger tip. There were no abnormal masses palpated.

Chest: The breasts were rubbery in consistency and no abnormal masses were palpable. Percussion of the heart borders revealed no abnormalities in shape or size. The apical beat was strong and highly irregular with pronounced bradycardia. The periods of asystole came at irregular intervals and varied in length from 2 to 6 seconds at this time. Auscultation revealed no discernible murmurs. The beats were loudest at the apex. Auscultation of the lungs revealed no rubs or rales.

Abdomen: The entire abdomen was firm and rubbery to palpation. Neither the liver nor the spleen could be palpated, because of the difficulty in denting the abdominal wall. Auscultation revealed a complete absence of peristaltic sounds.

Upper Extremities: No pulse could be palpated in the radial, brachial, or axillary arteries on either side. The skin temperature by palpation was progressively lower as one palpated from the shoulders to the hands. Touching the fingers or hands gave one the impression of touching ice. The elbows could be flexed only with great force. The hands and fingers were hard and could

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From the Department of Surgery, Michael Reese Hospital.

[1] (*a*) Haterius, H. O., and Maison, G. L.: Experimental Hypothermia and Rewarming in the Dog: Recovery After Severe Reduction in Body Temperature, Am. J. Physiol. **152:** 225, 1948. (*b*) Britton, S W.: The Effects of Lowering the Temperature of Homiothermic Animals, Quart. J. Exper. Physiol. **13:** 55, 1923. (*c*) Spealman, C. R.: Body Cooling of Rats, Rabbits and Dogs Following Immersion in Water, with a Few Observations on Man, Am. J. Physiol. **146:** 262, 1946. (*d*) Ariel, I.; Bishop, F. W., and Warren, S. L.: Studies on the Effect of Hypothermia: Acute Physical and Physiological Changes Induced by the Prolonged Hypothermic State in the Rabbit, Cancer Res. **3:** 448, 1943. (*e*) Ware, A. G., Hill, R. M., and Schultz, F. H.: The Effect of Interference with Respiration on the Control of Body-Temperature in White Rats and New Zealand Rabbits, Am. J. Physiol. **149:** 657, 1947.

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[3] Haterius and Maison.[1a] Bigelow, W. G.; Lindsay, W. K. and Greenwood, W. F.: Hypothermia: Its Possible Role in Cardiac Surgery; An Investigation of Factors Governing Survival in Dogs at Low Body Temperatures, Ann. Surg., **132:** 849, 1950.

not be dented. No attempts were made to manipulate the joints of the hands or fingers. Despite the patient's naturally dark skin color, there appeared patchy areas of dark violaceous lividity of most of the fingers and both hands to just above the wrists.

Lower Extremities: No pulse could be palpated in the femoral, popliteal, or dorsalis pedis arteries bilaterally. The garter area above the knees was still slightly indented from circular elastic garters, which had been removed. The skin of the thighs was rubbery and cool and could be dented on palpation. However, the skin of the area below the garter indentation was woody and could not be dented by the palpating finger. Touching these parts gave the impression of touching ice, or perhaps very cold metal. The skin from the knees to the tips of the toes was violaceous. The surface of this area appeared granular, the granularity being composed of what appeared to be desquamated epithelial cells. These areas were patchy and were more pronounced on the right side of each leg, that is, the lateral aspect of the right leg and the medial aspect of the left leg. Similar patchy areas of discoloration were found on the outer aspect of the right thigh and right buttock. The toes like the fingers were very hard and were not manipulated.

TABLE 1.—*Blood Chemistry*

	Normal	Feb. 8*	Feb. 9†	Feb. 12-15‡	Feb. 28
pH	7.4	7.17	7.35	7.46	7.4
Hematocrit	45	33	39	28	39
CO_2 comb., mM/L	25-35	17.9	22.5	25.3	24.9
Glucose, mg./100 cc.	70-120	438	121	78	88
Serum urea nitrogen, mg./100 cc.	9-19	10.4	21	65.9	12.9
Serum creat.	1-2	1.65	2.0	5.95	0.9
Serum Na, mEq./L	135-145	152.5	138.8	131.2	137.5
Serum Cl, mEq./L	98-106	106	98	94.8	103.2
Serum P, mg./100 cc.	3-4.5	6.6	7.1	7.2	4.8
Serum K, mEq./L	4-5	4.6	4.75	6.2	4.5
Total protein, gm./100 cc.	6-8	7.8	7.4	6.9	7.1
True albumin, gm./100 cc.	3.2-4.4	4.1	2.7	3.2	2.8
Total globulin, gm./100 cc.	2.6-3.8	3.7	4.7	3.7	4.3
Alpha globulin	0.7-1.5	1.1	...	1.2	1.1
Beta globulin	0.7-1.3	1.15	...	1.45	1.35
Gamma globulin	0.7-1.3	1.45	...	1.05	1.85
Serum bilirubin, mg./100 cc.	0.1-1.0	...	0.6	0.4	0.4
Total serum cholesterol, mg./100 cc.	120-300	...	129	177	...
Esterified cholesterol, %	68-74	...	62	63.5	...
Thymol turbidity, units	0-3	...	1.4	0.9	1.8
Thymol flocculation	0 to 1+	...	0	0	0
Cephalin-cholesterol flocculation	0 to 1+	++	++	+++	0

* Rectal temperature 64.4 F.
† Rectal temperature 99-100.6 F.
‡ Rectal temperature 100-102 F. (extreme values).

Back: Both buttocks exhibited areas of frostbite as described above; these areas were particularly pronounced on the right side.

Further Observations and Treatment.—At 9:30 a. m., 90 minutes after the patient's admission, a chemical thermometer calibrated according to centigrade scale was inserted into the patient's rectum for a distance of 5 in. (13 cm.). It was removed after three minutes and registered 18 C (64.4 F). The thermometer was reinserted so that readings could be taken at regular intervals (Fig. 1).

At this time 200 mg. of cortisone was injected intramuscularly into what appeared to be the warmest portion of the patient's body, the rectus abdominis muscle, just below the umbilicus.

A cut-down was made in the right antecubital fossa and the blood could not be drawn into a syringe readily since it was very thick in consistency. Consequently the blood was allowed to flow from the needle into test tubes for blood chemistry determinations. The flow of blood was encouraged by intermittent pressure on the upper arm. Some of the laboratory determinations, as shown in Tables 1 and 2, will be of interest since they were taken when the body temperature was 64.4 F. Of particular interest are the severe acidity of the blood and the extremely high serum glucose.

At 10:15 a. m. 2¼ hours after admission, the rectal temperature was 20 C (68 F). At this time a basal metabolism test was undertaken. The metabolic rate was —7.8%. The oxyge consumption graph shown in Figure 2 was taken an hour befor clinical evidence of respiratory embarrassment necessitated a emergency tracheotomy. An electrocardiogram was taken at thi time, when the rectal temperature was 20 C (68 F), and is show in Figure 3.

The patient was catheterized at 10:20 a. m.: 675 cc. of almo colorless urine was obtained from the bladder. The temperatu of the catheterized urine was 21.5 C (70 F). Results of u nalysis were as follows: pH 5; specific gravity 1.011; albumi 4+; sugar 2+; and no acetone. Microscopic examination of t centrifuged specimen showed 2 to 6 coarsely granular casts p high power field, 2 to 4 finely granular casts, occasional red bloc cells, 2 to 10 white blood cells, few squamous epithelial cells, o casional degenerated renal cells, and occasional bacter (Table 3).

By 11:30 a. m. the patient appeared to have difficulty in breat ing despite the oxygen mask. Further unsuccessful attempts we made to open the patient's jaws. A lubricated catheter insert into the nose could not be passed as far as the nasopharynx either side. Attempts to pass this tube caused slight bleeding fro the nose, probably due to erosion of nasal mucosa. The patie appeared to have obvious oxygen hunger, as evidenced now the gurgling sounds in the throat and the choking sounds th came with labored breathing. Consequently it was decided th an emergency tracheotomy should be done. The tracheoton was performed at 11:45 a. m., 3¾ hours after admission. Oxyg was administered through the tracheotomy tube, and the patie appeared to breathe much more easily.

At this time it appeared that the patient might recover. The fore, it was decided that the upper and lower extremities shou be dressed in pressure bandages, because of the possibility t massive edema might result later. At 12 noon, four hours admission, the legs and hands were gently washed with c pellets and dilute soft soap liniment, since they were covered gross dirt. Petrolatum gauze was applied, fluff gauze dre were placed over this layer, and elastic bandages complete pressure dressings. The temperature of the room was se pirically at 68 F, which was roughly equivalent to the pa internal temperature at this time. Except for the arms and which were bandaged, the body was exposed to the open

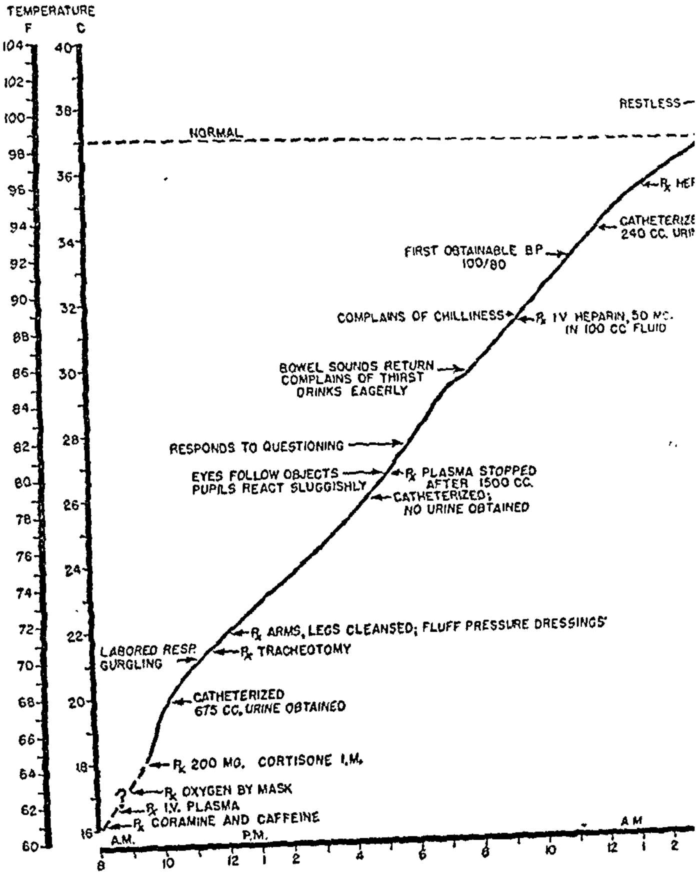

Fig. 1.—Temperature recovery curve from hypothermic levels.

The eyes were examined at 12 noon.[4] They were fixed in the primary position of gaze. The lids were essentially normal and the conjunctivas very pale, owing to constriction of blood vessels. Tactile tension was normal. The corneas were clear. The anterior chamber had normal depth. The pupils measured 2 by 2 mm., were vertically oval and did not react to light. The irises were brown, with no nodes or tumors. The lenses were clear. The vitreous was clear. The optic nerve heads were very pale and the capillaries severely constricted. The margin, size, and shape of the nerve heads were normal. The maculas were clear. The veins, which were full, were a deep burgundy. On slight pressure the veins emptied at the disk, but no definite pulsation was evident. The veins again filled at the disk when pressure was released. There was no arterial pulsation evident, and it could not be elicited by pressure; the arterioles were diffusely narrowed. There was a good light reflex; the retinas and choroid were slate gray. There was no evidence of hemorrhage or exudate. It was our impression that ischemia retinae was present.

TABLE 2.—*Hematologic Findings*

	Feb. 8 *	Feb. 9	Feb. 16	Feb. 23	Mar. 12	Mar. 22	June 6
Hb, gm. (%)	10.9 (64)	10.8 (69)	7.0 (45)	12.0 (77)	8.9 (57)	9.7 (62)	12.0 (77)
Red blood cells	3.5	3.65	2.66	4.1	3.00	3.31	4.01
White blood cells	16,000	11,800	....	17,400	13,500	10,300	7,600
Hematocrit	33	39	23	36	28	32	38
Color index	0.90	0.96	0.86	0.93	0.95	0.94	0.96
Mean cell volume	99	....	85	90	93	98	96
Sedimentation rate	55	10	69	55	66	58	35
Corrected sedimentation rate	31	....	30	41	38	37	....
Polymorphonuclear segment cells	62	72	52	66	60	62	62
Polymorphonuclear nonsegment cells	18	8	19	14	8	2	....
Eosinophils	0	2	2	0	4	4	2
Lymphocytes	*16*	*9*	*14*	*14*	*28*	*24*	*30*
Monocytes	3	9	12	7	....	8	6
Metamyelocytes	1	....	....	...	....	....	....
Basophils	....	....	1	...	....	....	....
Macrocytes	+2	+1	+1	+1	+1	+1	+1
Microcytes	+1	+1	+1	+1	+1	+1	....
Polychromatophilia	+1	....	....	+1	....	+1	....
Anisocytosis	+2	+1	+1	+1	+1	+1	+1
Poikilocytosis	+1	+1	+1	...	+1	....	....
Sickling	Negative	Negative	....	...	....	....	....
Target cells	....	....	+1	...	....	....	....
Plasma color	....	Normal	Normal	Normal	Normal	Normal	Normal
Prothrombin time (Quick) (min.)	14.5	13.8	20.5†	29.2†	....	....	....
Coagulation time (min.)	11.5	29‡	....	...	10	....	....

* Rectal temperature 18 C (64.4 F).
† 2-Phenylindanedione was used as the anticoagulant from February 16 through February 23.
‡ The patient was receiving heparin at the time of this determination.

TABLE 3.—*Results of Urinalysis*

Determinations	Feb. 8 *	Feb. 9 †	Feb. 12-15 ‡	Feb. 28	June 18
Color	Pale, clear	Bronze, cloudy	Pale, cloudy	Straw, cloudy	Straw, clear
pH	5.0	6.0	6.0	5.5	7.5
Specific gravity	1.011	1.010	1.012	1.022	1.024
Albumin	4+	3+	2+	2+	0
Sugar	2+	0	0	0	0
Acetone	0	0	0	0	0
Urobilinogen	0	1+	0	0	0
Occult blood §	4+	0	0	0	0
Microscopic					
Casts	2-6 coarsely granular; 2-4 finely granular	Many coarsely granular	Occasional coarsely granular; occasional finely granular	Occasional coarsely and finely granular	0
WBC	Occasional (2-10)	3-5 per HPF; motile cells	3-5 per HPF; no motility	3-5 per HPF; no motility	1-3 per HPF
RBC	Occasional (0-3)	0	Rare	Rare	Occasional shadow
Epithelium	Modified squamous; occasional degenerated renal cells	Many round and squamous cells	Many cells, some containing fatty droplets	Many cells, some containing fatty droplets	
Crystals	0	0	0	0	Few calcium oxalate
Bacteria	Moderate	Trichomonads	Many; yeast organisms (catheterized)	Rare	Moderate

* Rectal temperature 68 F.
† Rectal temperature 99-100.6 F.
‡ Rectal temperature 100-102 F. (extreme values).
§ Benzidine test.

By 3:30 p. m. the rectal temperature had risen to 25 C (77 F). The pulse rate was 72, with frequent dropped beats; respirations were 16 per minute. The administration of plasma was discontinued, 1,500 cc. having been given. The heart tones were of good quality, but the blood pressure was still unobtainable in the arms.

At 5:15 p. m. the rectal temperature had reached 27 C (80.6 F). The patient, although unable to speak, opened her eyes and followed objects and people; she appeared to be able to see. The pupils reacted sluggishly to light. There were no voluntary muscular movements in any part of the body. No peristaltic sounds could be heard on abdominal ausculation. The patient was again catheterized, but no urine was obtained.

At 5:40 p. m. the patient responded to loud questioning by shaking her head affirmatively or negatively. When she was asked about pain she responded in the negative. Muscular-

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4. Examination by Drs. Theodore A. Shapiro and Irv

ments were now possible on a voluntary basis to a limited extent. The patient could bend her elbows but apparently could not move her legs. Another attempt at catheterization failed.

At 6 p. m., 10 hours after admission, the rectal temperature had reached 28.5 C (83 F) and a light blanket was placed over the patient's body. At this time she responded well to all questions. Ausculation of the abdomen revealed a return of peristalsis, although the sounds were somewhat hypoactive. The patient complained of being thirsty and asked for cold drinks. She took water eagerly. Within the next few minutes the patient complained of being cold and had a slight chill, which lasted a few minutes. More blankets were added to the covering. Although blood pressure was still unobtainable on the upper extremities, it was deemed advisable to move the patient from the emergency room to a ward bed. This was done with no apparent ill-effects to the patient.

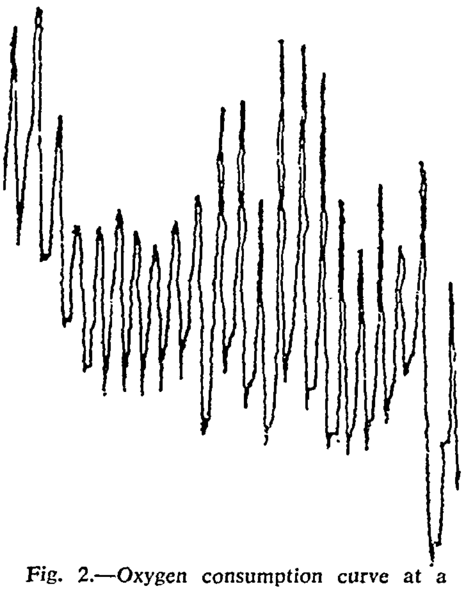

Fig. 2.—Oxygen consumption curve at a rectal temperature of 20 C (68 F).

At 8 p. m., 12 hours after admission, the patient's rectal temperature had reached 30 C (86 F), the apical pulse rate 120, and the respirations 16 to 18 per minute. Despite the tracheotomy tube, the patient was able to make sufficient sound to be understood when she spoke. At this time she asked for her father, who was called into the room; the patient immediately recognized him.

At 9 p. m. the rectal temperature was 31 C (87.8 F). The apical pulse rate was 100 and the respiratory rate 16 per minute. Bowel sounds were still hypoactive. Blood pressure was still unobtainable. Heparin administration by intravenous drip, 50 mg. every four hours in 100 cc. of 5% glucose and water, was begun. The patient requested and received sips of cold liquids. At 11:20 p. m., 15 hours and 20 minutes after admission, the first blood pressure was obtained; it was 100/80 on the left arm. Rectal temperature was 32 C (89.6 F). The patient asked to be moved to a more comfortable position, since apparently she could not yet control her muscular movements very well. At 11:40 p. m. the rectal temperature was 93.2 F; an ordinary rectal thermometer was used from this point on. Respirations were 22 per minute; the pulse rate was 100. The patient was catheterized, and 240 cc. of concentrated bronze-colored urine was obtained. Results of analysis of this specimen were as follows: pH 5, albumen 3+, sugar 1+; centrifuged sediment showed 10 to 15 casts per high power field, including mainly granular and occasionally red cell casts; tubular epithelium; occasional red blood cells and white blood cells; and no bacteria. The patient complained of a cold sensation in the hands and legs and shivered slightly.

At midnight the rectal temperature had risen to 95 F.

At 1 a. m., 17 hours after admission, the rectal temperature was 98 F, pulse rate 120, respirations 18, and blood pressure 118/80.

At 3 a. m., 19 hours after admission, the rectal temperature reached 101 F, pulse rate 120, respirations 18, and blood pressure 118/80. The patient complained of a fleeting chest pain, which disappeared spontaneously.

The rectal temperature remained at about 100 F for the next six hours. The patient began to get restless. At about 5 a. m. she complained of an uncomfortable feeling of warmth. The blankets were removed, and only a sheet remained to cover the patient.

A history obtained from the patient's father and husband indicated that she had been drinking more or less steadily for some nine hours prior to the time she lost consciousness. Apparently she had slipped on the ice at about 9 p. m. and, because of her inebriated condition, had had great difficulty in arising and lost consciousness. Therefore, it appears that her exposure had lasted 11 hours, from about 9 p. m. on February 8 to 8 a. m. on February 9. The patient had been dressed lightly; she wore a three-quarter length coat, sheer stockings, and light shoes; she had not worn gloves.

Conversations with the patient brought to our attention the fact that for the first 36 hours following return to normal temperature she had had amnesia for all events in the 12 hours immediately prior to her exposure until the time she regained consciousness. However, her memory for previous events was lucid and detailed. Thirty-six hours after the patient's temperature reached normal ranges she was able to recall the events that occurred within the 12-hour period prior to exposure. The amnesia for recent events following recovery from hypothermia has been observed previously.[5]

COMMENT ON HYPOTHERMIC PERIOD

Many questions arise concerning the reasons for this patient's recovery. There are many unanswered questions of physiologic significance. The accumulated data cannot answer all these questions, but it is hoped that these data will stimulate further experimental studies.

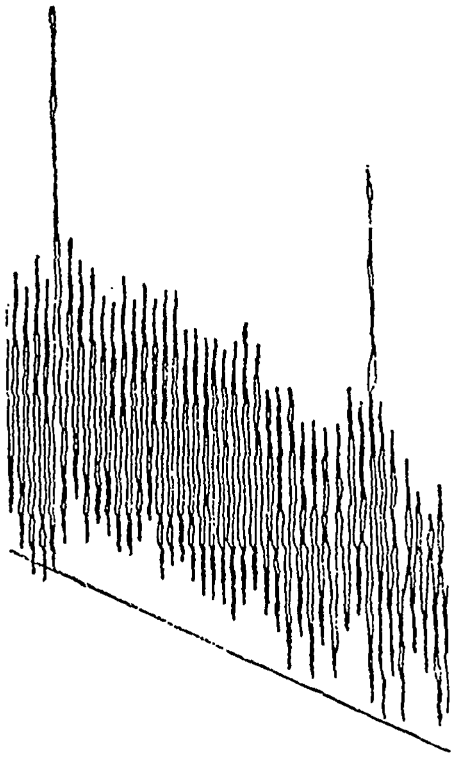

Fig. 3.—Normal oxygen consumption curve for this patient.

The recovery curve (Figure 1) followed a remarkably straight line in a room temperature of 68 F. The rise in deep rectal temperature during the recovery period averaged one degree per hour. No attempts were made to warm the patient. We had the choice of either the rapid [6] or slow [7] warming methods, each of which has its adherents. We chose to warm the patient slowly because of the extreme degree of hypothermia and the length of exposure. Under these circumstances we felt that rapid warming might cause a shift of body fluids from the intravascular to the extravascular space and possibly result in secondary shock. The only pronounced deviation in the recovery curve from a relatively straight line is the sharp rise immediately following the intramuscular injection of 200 mg. of cortisone. The significance of this deviation cannot be ascertained at this time, since the question arises as to the degree of absorption that would occur under such circumstances.

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[5] Talbott, J. H.: Cold Exposure: Pathologic Effects, in Medical Physics, edited by Otto Glasser, Chicago, The Year Book Publishers, Inc., 1944, p. 244.

[6] (*a*) Alexander.[2a] (*b*) Symposium on Frostbite by Russian Investigators, published by Defense Research Board of the Canadian Defense Department, cited in U. S. Nav. M. News Letter, **16:** 8, 1951. (*c*) Lempke, R. E., and Shumacker, H. B., Jr.: Studies in Experimental Frostbite: III. An Evaluation of Several Methods for Early Treatment, Yale J. Biol. & Med. **21:** 321, 1949. (*d*) Ariev, T. Y.: Slow Vs. Rapid Warming of Frozen Extremities, Vestnik. Khuin. **47:** 527, 1939. Cited by Arena, Gerbasi and Blain.[7]

[7] Talbott.[5] Talbott, J. H.; Consolazio, W. V., and Pecora, L. J.: Hypothermia: Report of a Case in Which the Patient Died During Therapeutic Reduction of Body Temperature, with Metabolic and Pathologic Studies, Arch. Int. Med. **68:** 1120 (Dec.) 1941. Safford, F. K., Jr., and Nathanson, M. B.: Clinical Observations on Tissue Temperatures: Pathologic and Therapeutic Effects, Arch. Surg. **49:** 12 (July) 1944. Rosenfeld, L.; Langohr, J. L.; Owen, C. R., and Cope, O.: Circulation of the Blood and Lymph in Frostbite and Influence of Therapeutic Cold and Warmth, Arch. Surg. **59:** 1045 (Nov.) 1949. Greene, R.: Immediate Vascular Changes in True Frostbite, J. Path. & Bact. **55:** 259, 1943.

A projection of the straight line temperature curve to the time of admission would bring the rectal temperature on admission to about 16 C (60.8 F). To our knowledge recovery from such low temperatures has not been recorded in man.

The patient apparently had lain on her right side throughout the period of unconsciousness, since this was the side having the most marked areas of frostbite. The circular garter marks above the knee might have been a contributing factor to the extreme degree of frostbite below this area. It is well known that pressure is a contributory part of tissue destruction in frostbite.

Initial treatment of frostbitten extremities by the application of petrolatum gauze and fluff dressings with mild external elastic pressure is controversial. This type of treatment was used here since it is the therapy usually employed in burns at this hospital. Its rationale can be defended on the basis that the dressings protected the extremities against further trauma and against a secondary state of shock which might have followed extravasation of fluids into the tissues on warming. However, in the light of developments in the post-hypothermic period, the question might well be raised as to whether the saprophytic invasion of the tissues in the extremities, particularly by anaerobes, might not have been encouraged by occlusive dressings.

The question of vasodilating measures was considered rom the beginning. The most definitive work on this ubject in instances of severe frostbite indicates that vasodilating measures are probably contraindicated, since hey enhance local edema and might precipitate gangrene.[8] Other work has shown that this may not be true n milder cases.[9] In the light of this information, we used no local vasodilating measures in this case.

Anticoagulant therapy was begun as soon as peripheral blood pressure was perceptible, about 12 hours after admission. Experimental evidence indicates that anticoagulant therapy may prevent gangrene when the latter s due to thrombosis following frostbite, particularly when used very early.[10] There is also some circumstantial evidence that this may hold true in human cases.[11]

The rapid lowering of this patient's temperature in relatively dry cold surroundings might have contributed to her survival. The relative humidity according to the United States Weather Bureau ranged from 58% to 70% during the period of the patient's exposure, and the official temperatures for this period ranged from −1 F to −7 F. Unofficial temperatures in the neighborhood varied from −11 F to −15 F.

Regarding the effect of alcohol ingestion, we believe the alcohol could have served as an initial soporific comparable to the administration of barbiturates or light anesthesia to experimental animals to offset the intense psychomotor disturbances and panic of the first stages of abrupt chilling.[1a] Furthermore, alcohol is known to produce peripheral vascular dilatation at the expense of deep body temperature. Under such conditions a greater volume of blood would be exposed to the cooling effect of the surroundings and hasten a drop in body temperature. It is unlikely that ingested alcohol could work in any other manner. In Rascher's Nazi experiments,[2a] the ingestion of alcohol could not be evaluated since the amount given was very small and post-hypothermic observations were inadequate. It remains for controlled animal experimentation to clarify the effect of alcohol in this condition.

Metabolism.[12]—The metabolic rate of —7.8% which was obtained at a rectal temperature of 20 C (68 F) is not actually a basal reading, nor is it altogether accurate. This figure was calculated from the DuBois tables, as modified by Boothby and Sandiford, for normal body temperatures. Yet the actual metabolic rate extrapolated to the temperature of the patient would modify this figure only slightly. There are, however, several reasons why one would not expect a remarkably low metabolic rate in this patient: 1. The patient had ingested large amounts of alcohol prior to her exposure. Therefore, although all metabolic processes were diminished during the period of unconsciousness, there was nonetheless some absorption and metabolism of alcohol, albeit more slowly than under normal conditions. 2. Clinically imperceptible muscle fasciculation and fibrillation during hypothermia are known to prevent pronounced drops in metabolic rate.

The oxygen consumption curve taken at a rectal temperature of 20 C was compared with a later curve taken after recovery. Respirations at the time of the first test were about 12 per minute. The slow irregular rate and the irregularity in depth of respirations may be noted (Fig. 2), as contrasted with the normal pattern for this patient (Fig. 3).

Cortisone was given on the basis that this patient had undergone a severe degree of stress, with possible adrenal exhaustion. Proof of the value of either cortisone or corticotropin (ACTH) in hypothermia would depend on the results of controlled animal experiments. Evidence that there was a pronounced degree of adrenal stimulation induced by the stress condition of hypothermia is probably reflected in this patient's remarkable hyperglycemia (serum glucose 483 mg. per 100 cc.) in the frozen state. This situation is perhaps the result of both adrenal medullary and cortical stimulation. Glycogenolysis due to epinephrine may have been the initial cause of the hyperglycemia. Selye [13] has shown that exposure to cold superimposed on a period of fasting intensifies and accelerates the appearance of a secondary hyperglycemic peak after "fasting hyperglycemia." According to Selye, this rise in blood sugar appears to depend on the secretion of adrenocorticoids. As can be seen in Table 1, the serum glucose level fell to 121 mg. per 100 cc. within 24 hours after admission and to within the normal range by the following day, where it remained for the duration of the patient's hospital stay. Urinalysis showed no evidence of ketonuria either during the frozen state or thereafter. The severe acidosis during hypothermia (blood pH 7.17; carbon dioxide combining power 17.9 mM/L) is probably an expression of the reduced blood flow to the muscles with consequent accumulation of lactic acid.

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[8] Arena, J. A., Jr.; Gerbasi, F. S., and Blain, A., III: Experimental Frostbite: An Inquiry into the Effect of Sympathetic Block Using Tetra-Ethyl Ammonium Chloride in the Acute Stage, Angiology **1**: 492, 1950.

[9] (*a*) Lempke and Shumacker.[6c] (*b*) Southworth, J. L.: The Role of Sympathectomy in Treatment of Immersion Foot and Frostbite, New England J. Med. **233**: 673, 1945. (*c*) Holmes, T. W., Jr.: Modern Concepts in the Treatment of Frostbite: Presentation of a Case Successfully Treated with TEAC, Alexander Blain Hosp. Bull. **7**: 12, 1948. (*d*) Shumacker, H. B., Jr.: Peripheral Vascular Disease, Surgery **13**: 1, 1943. (*e*) Shumacker, H. B., Jr., and Abramson, D.: Sympathectomy in Trench Foot, Ann. Surg. **125**: 203, 1947. (*f*) Crismon, J., and Fuhrman, F.: Studies on Gangrene Following Cold Injury, J. Clin. Invest. **26**: 468, 1947.

[10] (*a*) Lempke and Shumacker.[6c] (*b*) Lange, K., and Boyd, L.: Functional Pathology of Experimental Frostbite, Surg., Gynec. & Obst. 346, 1946. (*c*) Lange, K.; Kiener, D., and Boyd, L. J.: Frostbite: Physiology, Pathology and Therapy, New England J. Med. **237**: 383, 1947. (*d*) Friedman, N. B.; Lange, K., and Weiner, D.: The Pathology of Experimental Frostbite, Am. J. M. Sc. **213**: 61, 1947. (*e*) Shumacker, H. B., Jr.; White, B. H.; Cardell, A. R.; Wrenn, E. L., and Sanford, T. F.: Studies in Experimental Frostbite: The Effect of Heparin in Preventing Gangrene, Surgery **22**: 900, 1947.

[11] Theis, F. V.; O'Connor, W. R., and Wahl, F. J.: Anticoagulants in Acute Frostbite, J. A. M. A. **146**: 992 (July 14) 1951.

[12] Metabolic observations were made in collaboration with Dr. Rachmiel Levine.

THE IMMEDIATE POST-HYPOTHERMIC PERIOD

The day following admission the patient was feeling rather comfortable, with no specific complaints. A complete inventory of the chemistry of the blood and urine was obtained (Tables 1 and 3). The only indication that difficult days lay ahead might have been seen from the urinary findings of albuminuria and the presence of coarsely granular casts. The pH of the blood during hypothermia had now approached normalcy and the hyperglycemia was definitely diminished, but there was present a 2+ cephalin-cholesterol flocculation with a slight derangement of the albumin-globulin ratio.

The therapeutic plan at this time involved three major objectives: (1) preservation, as far as possible, of frostbitten tissue; (2) prevention of infection; and (3) general care to reestablish a state of normalcy in body functions.

Frostbite Care.—The four-hour doses of 50 mg. of heparin were supplemented by an initial dose of 300 mg. of bishydroxycoumarin (dicumarol®) the day after admission. Heparin was discontinued within two days when therapeutic levels of prothrombin time were reached. After two days of bishydroxycoumarin we were able to obtain a supply of 2-phenylindanedione; anticoagulant therapy was maintained at therapeutic levels with this drug for 22 days. This drug was chosen because our experience with it in the laboratory [14] indicated that more even prothrombin levels can be maintained with it than with bishydroxycoumarin and that its effect disappears more rapidly after discontinuance.

The day following admission the patient complained, for the first and only time, of pain in the legs. We were unwilling to use opiates of any kind and decided to give the patient 500 cc. of a 0.2% procaine hydrochloride solution by slow intravenous infusion. Within five minutes after the start of the infusion the patient no longer complained of pain.

The morning following admission it was decided that the extremities should be rewrapped, since the dressings had been hurriedly applied in the emergency room the day before, when it was not known whether the patient would survive. The dressings were removed under sterile conditions in the presence of several surgeons. Inasmuch as the digits of both upper and lower extremities were frozen hard on admission, we took advantage of this opportunity to examine the functional state of these parts. We found that the patient was able to move the digits of all four extremities individually and collectively through a normal range of motion. Furthermore, some proprioceptive sense seemed to be present in each digit. Large blisters now covered the palms and dorsal surfaces of both hands, including the fingers, and were also present in a patchy pattern on both legs, the outer aspect of the right thigh, and the buttocks. The ankles and feet, though not actually blistered, appeared puffy and felt very cold to the touch. No pulsations could be felt in either dorsalis pedis artery, although they could be felt in the popliteal space bilaterally. Each extremity was carefully rewrapped, with petrolatum gauze, fluff dressings, and elastic bandage, in the position of function.

Measures to Prevent Infection.—On the day of admission penicillin therapy was instituted; the patient received 600,000 units daily thereafter for a period of three weeks. Subsequent antibiotic therapy is mentioned below. The day following admission prophylactic injections of 5,000 units of tetanus antitoxin as well as an ampul of polyvalent gas gangrene antitoxin (2,000 units of Clostridium welchii antitoxin and 2,000 units of Clostridium septicum antitoxin). Aseptic precautions were strictly observed in all dressings.

General Care.—We decided not to limit the patient's intake of food or fluid, since she appeared to enjoy and perhaps even need whatever she ingested. This plan may have played a role in later problems in fluid and electrolyte balance. The tracheotomy tube was removed 48 hours after admission, and the wound was closed with a Michel clip.

POST-HYPOTHERMIC SEQUELAE

Since the detailed account of the day-to-day course in the weeks following admission would be too lengthy for this report, the post-hypothermic sequelae will be summarized catagorically below. In some categories, progress to healing occurred in the absence of complications. In other instances the complications were so severe as to endanger the patient's life. These studies represent the cooperative efforts of a large number of hospital staff members, only a few of whom are mentioned below.

Ocular Findings.[15]—Eye examination the day after admission revealed that the pupils dilated well with eucatropine (euphthalmine®) hydrochloride 2% and hydroxyamphetamine (paredrine®) hydrobromide 1%. Vision was 12/20 on the right and 12/18 on the left. The patient could accommodate with either eye to 12 type at 14 in. The lids were normal and of good color, with no evidence of injury or infection. The conjunctivas were of good color, with no evidence of pathology. The preauricular nodes were not palpable. Tactile tension was normal. No pus or mucus could be expressed from the lacrimal sacs. The corneas were clear. There was no evidence of damage to the epithelium or endothelium. The anterior chambers were clear (no cells or transudation), with normal depth. The pupils were round and equal (2 by 2 mm.) and reacted to light, direct and consensual. The irises were deep brown, with no tumors or masses; vascular markings were clear, with good pigment ruff at the papillary border and no evidence of hippus. The lenses and vitreous were clear. External ocular muscle action was good; the levator palpebrae superioris was especially strong. There was good convergence power, within 125 mm. PcB. Duction and version movements were normal in the cardinal positions of gaze. There was no evidence of tropia. There was mild exophoria, of about 12 prism diopters. The right and left fundi were essentially the same. The disks were round and normal in size but showed mild temporal pallor; the nasal vein was pink, with sharp borders and normal excavation; there was no evidence of edema. The maculas were clear, with good foveal reflex and no disturbance of pigmentary epithelium. The arteriovenous ratio of the retinal vessels was 1:1.5; there was a good arteriolar reflex, with no evidence of sheathing or arteriovenous compression, undue tortuosity, or exudates or hemorrhages. A spontaneous venous pulsation was noted at the disk. There appeared to be little evidence of ocular pathology. The ischemia retinae noted the previous day had completely cleared. The retina and optic nerve revealed no permanent damage at this time. The vision was excellent. Subsequent eye examinations revealed no residual pathology.

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[13] Selye, H.: Fasting Hyperglycemia, Bull. Biol. et. méd. Expér. URSS, 8: 339, 1939; The Physiology and Pathology of Exposure to Stress: A Treatise Based on the Concepts of the General-Adaptation-Syndrome and the Diseases of Adaptation, Montreal, Acta, Inc., 1950.

[14] Preston, F. W.; Ross, A.; and Laufman, H.: Unpublished data.

[15] Drs. Theodore A. Shapira and Irving S. Krause.

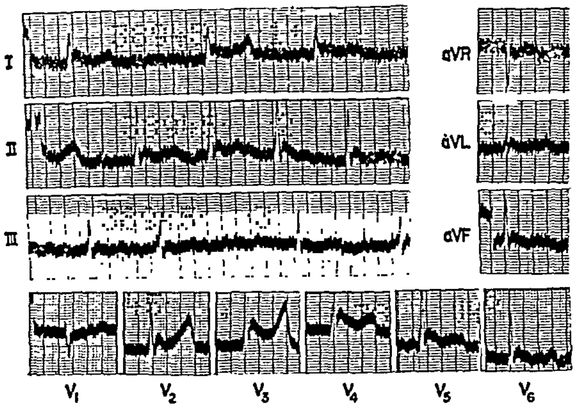

Fig. 4.—Electrocardiographic tracing taken at rectal temperature of 20 C (68 F). The tracing is distorted by extracardiac artifacts due to muscle tremor. No P waves can be distinguished. The ventricular action is irregular at an average rate of 42 per minute. The longest R-R intervals are equal, corresponding to a rate of 30, and intervals of less duration, separating the longest intervals, show progressive shortening. Auricular fibrillation cannot be excluded. However, the spacing of the ventricular complexes suggests the presence of nodal rhythm with second degree auriculoventricular block and Wenckebach periods below its point of origin. Under this assumption depression of the primary pacemaker (complete sinus standstill) or complete sinoauricular block could be the primary disturbance of rhythm. The S-T-T complexes show marked prolongation and bizarre configuration. The Q-T interval of the longer cycles measures 0.78 sec. instead of the expected 0.48 ± 0.04 sec. S-T is elevated in most of the leads and forms a broad concavity between two peaks, thus giving the impression of a double T wave. (Interpretation by Drs. A. Pick and L. N. Katz.)

Electrocardiographic Data.[16]—With the return to normal ranges of temperature there appeared a sinus tachycardia, which persisted until 12 days after admission. Electrocardiograms were taken daily from the time of entry. A detailed study of these is being reported separately. An electrocardiogram taken six days after admission (Fig. 5*A*) showed a configuration commensurate with a pattern seen in acute diffuse pericarditis. By February 21, thirteen days after admission, the pulse rate returned to within normal limits and the electrocardiogram showed evidence of restitution (Fig. 5*B*).

A summary of the essential electrocardiographic changes in this case can be divided into three stages: 1. The earliest period extended over three days, with maximal changes on the first day of observation. This period was characterized by (*a*) disturbances of cardiac rhythm due to depression of activity of cardiac pacemakers and probably partial depression of sinoauricular and atrioventricular conduction. These changes showed more rapid regression (within one day) than (*b*) the severely over-all alteration of the repolarization process of the ventricular myocardium, extending over three days and producing unusual changes of duration and contour of S-T-T. 2. A period of progressive T wave changes, imitating in type and duration (about two weeks) the electrocardiographic course of acute diffuse pericarditis. This would suggest that during this period organic and/or functional alterations present in the myocardium were restricted mainly to its outer, subepicardial layer. 3. A stage of restitution, which in the course of further observation showed decided lability as evidenced by episodes of partial relapse to previous electrocardiographic abnormalities with rapid restitution.

Respiratory Tract.—At no time throughout the entire period of hospitalization was there any evidence of lung pathology.

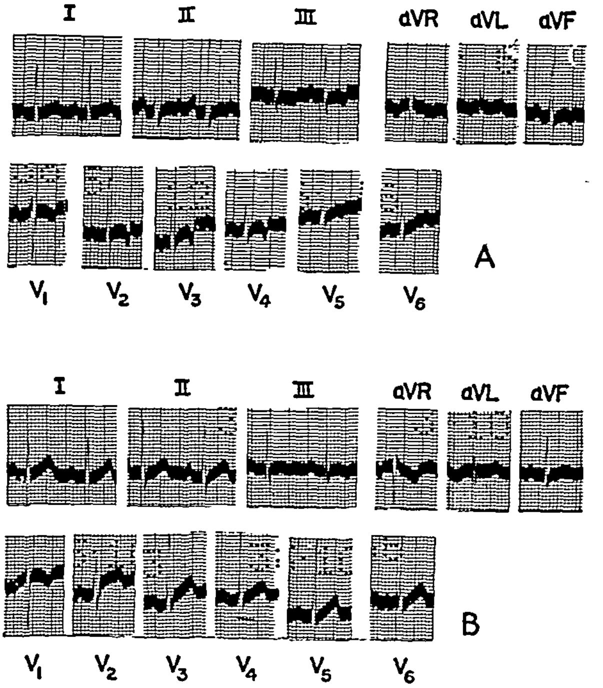

Fig. 5.—*A*, electrocardiographic tracing taken Feb. 14, 1951, six days after admission. Rate 115; P-R interval 0.18 sec.; sinus tachycardia. S-T is no longer deviated, and Q-T is of normal duration. The configuration of the T waves is similar to a pattern seen in the course of acute diffuse pericarditis. *B*, electrocardiographic tracing taken Feb. 21, 1951, 13 days after admission. Rate 88; P-R interval 0.18 sec.; restitution to normal.

Hematologic Findings.[17]—Figure 6 and Table 2 show the parallel course followed in the post-hypothermic period by the hematocrit, the hemoglobin, and the red blood cell levels. This could have been due to a post-

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16. Drs. Alfred Pick and Louis N. Katz.
17. Work done in collaboration with Dr. Karl Singer.

hypothermic anemia or to hemodilution. A transfusion of 500 cc. of blood was given on February 20 (12 days after admission) without full knowledge of what the drop in the red blood cell count actually signified. The transfusion had no observable effect on the downward course of the red blood cell count. Unfortunately blood volume studies were not made at this time. However, evidence that the drop in hematocrit, hemoglobin, and red blood cell levels was probably not the result of anemia was obtained from blood marrow studies on February 17 (nine days after admission). The marrow examination showed no evidence of increased erythrocytogenesis. The complete marrow report was as follows: full marrow; megakaryocytes adequate; erythroblast-granulocyte ratio 1:4; red cell series normoblastic; no foreign cells or parasites. The marrow was considered essentially normal.

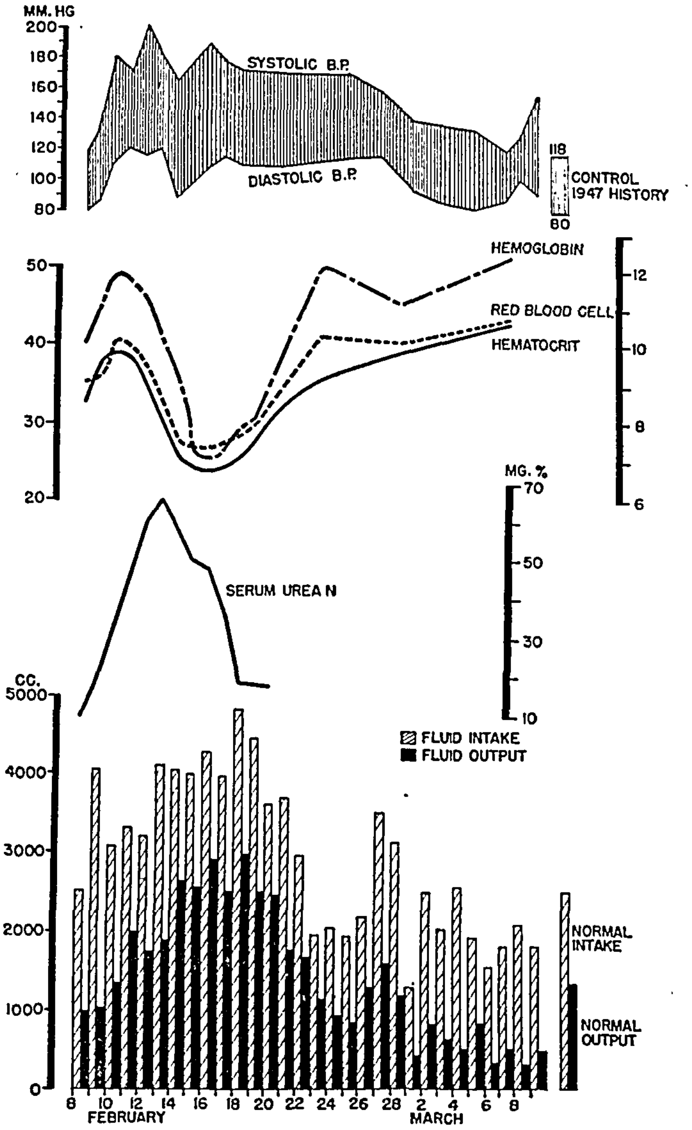

Fig. 6.—Correlation of blood pressure, blood picture, serum urea nitrogen, and fluid intake and output in the post-hypothermic period.

No eosinophils were found in the blood smears on the day of admission. The significance of the lack of eosinophils in the hypothermic period can probably be ascribed to adrenal stress.[18] The next day two eosinophils per 100 leukocytes were found. This count persisted until March 5, when again no eosinophils could be found. On this date the patient exhibited a skin rash. The rash disappeared when all antibiotics were stopped. After March 12 four eosinophils per 100 white cells appeared; this count persisted fairly consistently throughout the entire hospital stay.

The cold agglutinin titer on February 19 was 1:1, not a significant titer. Results of a saline erythrocyte fragility test, on February 20, when the anemia was severe, were within normal range.

Electroencephalographic Data.[19]—Unfortunately it was impossible to get an electroencephalographic tracing while the patient was in coma. The first tracing was made on February 13, five days after admission. The base line showed low voltage waves of 4.5 cps throughout. A moderately well-sustained 10 to 11 cps rhythm was found occipitally and to a lesser degree centrally when the slower rhythms were in abeyance. Except for slow waves, the diagnostic impression was that there were no gross abnormalities.

The test was repeated on June 21, some 18 weeks after admission, at which time the record was not notably different from that of February 13, and was classified as within normal limits. It can be surmised that the hypothermic period resulted in no permanent change in the electroencephalographic record.

Changes in Blood Pressure, Water Balance, Electrolyte Balance, and Renal Function.[20]—The blood pressure became perceptible 14 hours after admission, when the rectal temperature was 33 C (91.4 F). The blood pressure then was 100/86. Blood pressures in the range of the patient's norm of 118/80 (available from a previous record) persisted for only 36 hours, when hypertension gradually became evident. As can be seen from Figure 5, the blood pressure reached definite hypertensive levels two days after admission and remained high for a period of 18 days. During this period blood pressure ranged from 170/100 to 200/120 with few exceptions. A detailed description of the data accompanying this hypertension forms the basis for a separate report, but a summary of the available data will be made here.

The fluid intake of this patient was governed largely by her desires, since we were unaware of any possible ill-effects that this might entail. We were concerned mainly with the question of urinary excretion. Beginning the fourth day the patient began to excrete abnormally large amounts of urine. In Figure 6 it can be seen that the excessive fluid output from the third to the 13th day, paralleled the excessive daily fluid intake for this period. Yet the urinary specific gravity at no time within the first seven days fell below 1.009 or went above 1.012. Following this period (after the 13th day) the daily urinary output was relatively low and the intake varied from low to moderately excessive. The specific gravity rose to 1.022 by February 28, at a time when the urinary output was markedly diminished.

The only intravenous supplementation of intake throughout the charted period consisted of 1,500 cc. of plasma and 1,000 cc. of 5% glucose in saline intravenously on the day of admission, 500 cc. of saline containing 0.2% procaine hydrochloride the next day, 500 cc. of blood on February 20, 12 days after admission, and 1,000 cc. of 5% glucose in saline on February 21, 13 days after admission.

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[18] Dalton, A. J.; Masson, G., and Selye, H.: Coagulation et éléments figurés du sang pendant le syndrome général d'adaptation chez des animaux normaux et chez des animaux adrénalectomisés, Bull. et mém. Soc. roumaine endocrinol. 5: 176, 1939.

[19] Drs. Herman M. Serota and M. Torman.

[20] Work done in collaboration with Drs. William I. Freud, Richard Sternheimer, and I. I. Ritter.

Figure 6 demonstrates the correlation between excessive fluid intake and hemodilution, as evidenced by the parallel drop in hemotocrit readings, hemoglobin, and erythrocyte counts. The assumption that a hypervolemic state existed was supported by the bone marrow evidence against anemia, although blood volume studies were not performed.

During this same period there was a marked degree of azotemia, with a peak serum urea nitrogen of 66 mg. per 100 cc. on February 13, five days after admission. Serum creatinine levels increased proportionately, reaching a peak of 6 mg. per 100 cc. one day before the maximum elevation of urea nitrogen. Urinary creatinine measured in grams per 24 hours was extremely low during most of the period in which the serum creatinine was elevated, indicating a defect in creatinine clearance. Also, throughout the two-week period following injury albuminuria (2+ to 4+) was present and lipoid casts were found in the centrifuged sediment.

From this data it would appear that, in addition to the apparent hypervolemia associated with hypertension, kidney damage was also present. Lewis and Thompson[21] found "acute nephrosis" in rabbits exposed to local cold injury. The urine of their animals exhibited lipoid casts and degenerated renal cells similar to those found in this patient.

The other chemistry determinations during this period indicated that there was a relatively normal serum sodium, but an extremely low output of sodium in the urine (Fig. 7). The serum chloride levels more or less paralleled those of the sodium except for a short period in which there was mild hypochloremia. Salt intake, although unmeasured, was considered normal. Because of the apparent hemodilution, the normal serum sodium levels could actually represent relative hypernatremia. On the other hand, the extremely low urinary sodium and chloride levels expressed in milliequivalents per 24 hours represented an absolute diminution in excreted sodium and chlorides, again suggesting sodium retention. This picture might be consistent with the disturbance in renal function produced by Selye[22] in animals treated with desoxycorticosterone acetate. The sodium retention in our case might have been due to renal damage. However, it is more probable that it was due to adrenal hyperactivity, especially in view of the fact that potassium excretion was abnormally high for a prolonged period at a time when pronounced nitrogen retention occurred.

During the period under discussion there was moderate hyperphosphatemia and a diminution in urinary phosphates. Both of these deviations were corrected as the blood pressure approached normal limits and the azotemia disappeared. Urinary creatine was significantly elevated from the period three days after admission for eight days.

It is impossible to state whether there was any relationship between the effects of tissue destruction and the persistence of hypertension. However, there seems to be an apparent correlation between the two, inasmuch as the final recession to the patient's norm of 118/80 did not occur until five days after amputation of the legs.

The available data suggests that we were dealing with a combination of events. There seemed little doubt that kidney damage was present, involving both tubular and glomerular elements. The voluntary demand for excess fluids by the patient might have been due to the resulting isosthenuria, leading in turn to hypervolemia.

Frostbite Sequelae.—Despite massive dressings and intensive antibiotic therapy as previously outlined, it became necessary to change the dressings on all four extremities every 48 hours after the fourth day because of permeation of large amounts of malodorous drainage. Débridement of epidermal layers was carried out as indicated on a conservative basis. Large blisters were not opened. When such blisters ruptured spontaneously the necrotic overlay was removed.

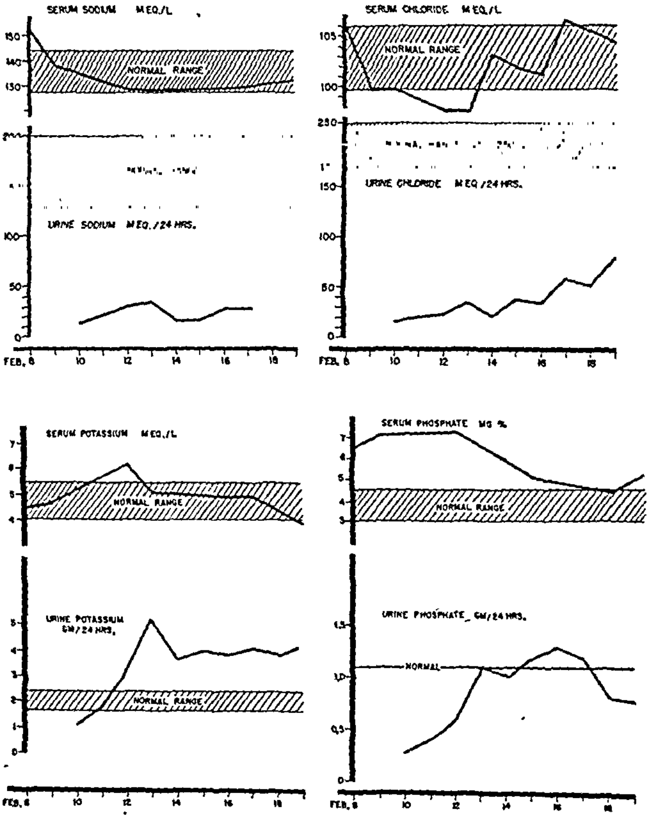

Fig. 7.—Serum and urinary sodium, chloride, potassium, and phosphate levels in the post-hypothermic period.

Although it was evident after five days that there was no sign of viability in the tissues of either foot, the patient was still able to dorsiflex both feet and move the toes, but this latter movement was not through as wide a range of motion as previously. There was no sensation in either foot or leg up to just below the knee level. On the seventh day the hands, as well as the fingers, were covered with huge blisters on both the dorsal and volar surfaces, but the patient had an almost full range of motion in all joints of all fingers. She was also able to abduct and adduct all fingers and to oppose the thumbs. This indicated viability in the intrinsic muscles of the hands. The larger blebs were aspirated of clear straw-colored fluid, the volume of which was estimated to be 300 cc. from both hands.

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[21] Lewis, R. B., and Thompson, R. M.: Acute Nephrosis Following Experimental Local Cold Injury, United States Air Force School of Aviation Medicine, Progress Report No. 21-23-016, November, 1950.

[22] Selye, H.; Hall, O., and Rowley, E. M.: Experimental Nephrosclerosis: Prevention with Ammonium Chloride, Lancet 1:301, 1945. Selye, F. L.: Biochemical Changes in Hypertension, Canad. M. A. J. 57:325, 1947.

On February 16 (eight days after admission) a coat of necrotic epidermis was removed over the palm and the dorsum of both hands and wrists. The underlying tissue proximal to the metacarpophalangeal joints appeared pink and smooth, while distally this layer was dark red and partially demarcated from the pink tissues proximally. At no time was there pain associated with redressing or with active motion of the fingers (Fig. 8).

After two days the blisters on the buttocks were exposed to air under a bed cradle, since it was difficult to keep them dressed. They were treated with boric acid dressings periodically throughout each day.

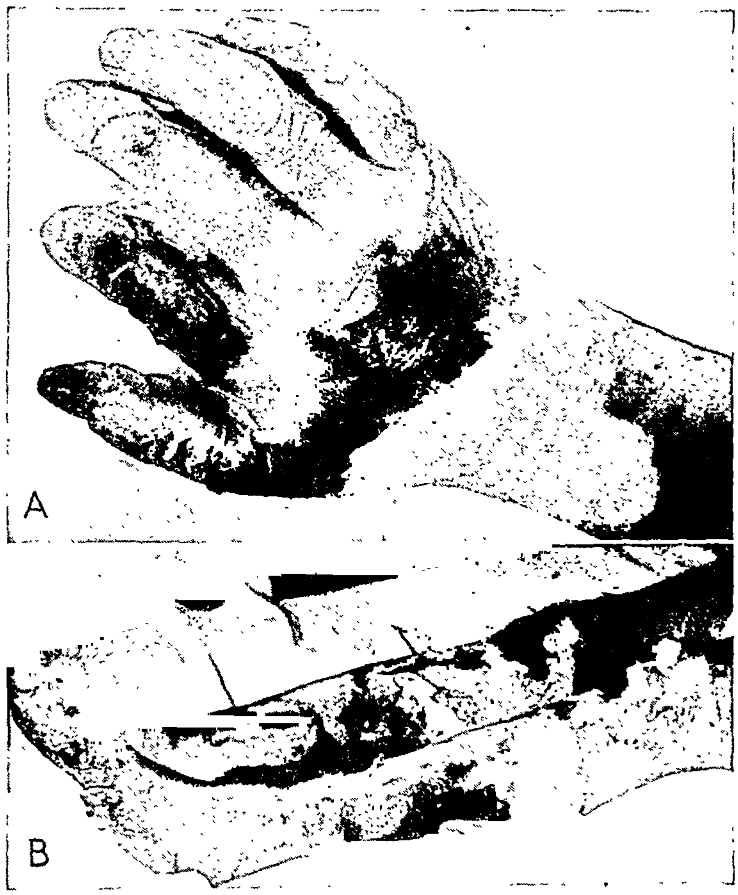

Fig. 8.—Appearance of hands and legs on Feb. 16, 1951, eight days after admission. At this stage there was still motion in fingers and toes.

Dressings of the lower extremities on February 21 (13 days after admission) revealed that with the exception of large areas on the right side of each leg, in which the superficial tissue now appeared black and nonpliable, most of the surface of the legs was covered by what appeared to be pink epithelium. The skin of the toes was still adherent. The lesions of the leg appeared delimited from the milder blisters of the thigh by the garter line in the superpatellar region.

There was evidence now of foot drop, and the patient was no longer able to dorsiflex the ankles. Dressings of the hands the same day revealed the beginning formation of a dark brown firm eschar over the fingers.

A dark eschar developed over the legs and feet over the next few days. Aquaphor® (ointment containing hydroxyl animal fats) dressings and saline soaks were used on the hands in an attempt to soften the eschars. This apparently proved to no avail and was discontinued after four days. The eschars on each finger were bivalved on February 25. The right hand was placed in an aluminum cock-up splint between soakings, since a moderate wrist drop appeared to be developing.

Dressings were done daily from this point on, and débridement was carried on in which small amounts of the eschar were taken away from the proximal edges as far as spontaneous separation would allow. We were encouraged by the fact that as the eschar was cut away from both the hands and the legs, pink granulation tissue was invariably found underneath.

On March 4 examination of the legs revealed that, while some areas in the upper third were epithelized, about 60% of the exposed surface of the legs between the eschar and the knees had lost a full thickness of skin. The eschar at this time had been débrided to about the level of the lower third of the tibia. Directly over the lower aspect of the tibialis anterior muscle the granulation tissue did not appear as healthy as did the higher areas. Deeper débridement at this time, through the fascia and into the belly of the tibialis anterior muscle, revealed the muscle to be salmon pink, foul smelling and noncontractile on cutting. Nonetheless, bleeding was brisk from spurting small arteries which were cut across when the muscle was incised. There was no pain at any time during this débridement without anesthesia. The bacon rind eschar from this point distally was not removed but was bivalved to a deeper level. A deliberate incision was made over the dorsum of the left foot, revealing black, foul-smelling necrotic tissue to the bone. It became obvious to us at this time, that, despite all measures to preserve tissue, it was necessary to amputate both lower limbs at least as high as the lower third of the tibia. Surgery was postponed because of a severe generalized skin rash, presumably caused by penicillin. Maximum temperature elevation during this period was in the neighborhood of 100 F. The pulse rate during this period ranged from 120 to 130, and the patient appeared toxic. Terramycin, 2,000 mg. per day, was given in place of penicillin. Within 48 hours the stools became tarry and were strongly positive for blood. Anticoagulant therapy was stopped on March 6, 26 days after admission, as was all medication, including terramycin. Vitamin K was administered.

On March 8, with the use of cyclopropane and eth anesthesia, the amputations were performed. Guilloti amputations were performed at the lowest possible lev commensurate with viable tissue. This was approx mately 9 in. (23 cm.) below the knee bilaterally. Th patient took anesthesia very poorly and had a pulse ra between 120 and 160 throughout surgery. After the fir leg was amputated, the patient's blood pressure droppe to zero, despite continuous blood transfusion, and amputation of the second leg was delayed for 45 minutes while resuscitative measures were administered. During surgery 1,500 cc. of blood were given. Detailed pathologic and bacteriologic studies on the specimens are to be reported elsewhere.[23]

The pulse rate ranged between 128 and 140 for 10 days after operation. Electrocardiograms during this time revealed only sinus tachycardia. Despite the persistently rapid pulse the patient's general condition appeared much improved within 48 hours after surgery. She appeared less toxic, and her appetite, which had diminished with the occurrence of drug sensitivity and toxicity, was now back to normal.

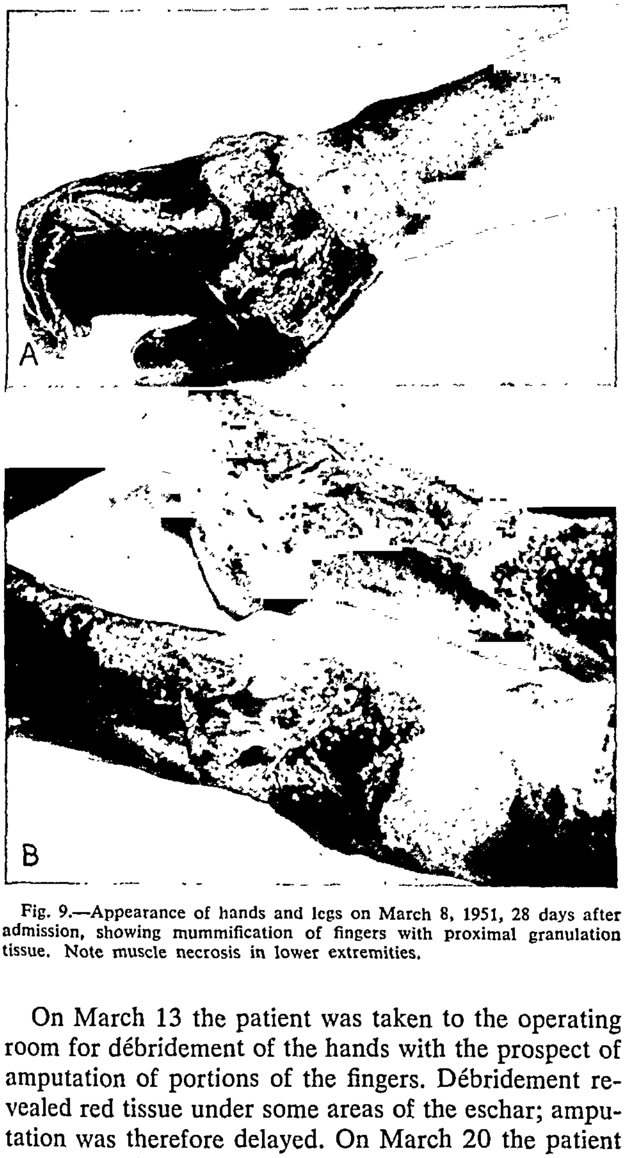

Fig. 9.—Appearance of hands and legs on March 8, 1951, 28 days after admission, showing mummification of fingers with proximal granulation tissue. Note muscle necrosis in lower extremities.

On March 13 the patient was taken to the operating room for débridement of the hands with the prospect of amputation of portions of the fingers. Débridement revealed red tissue under some areas of the eschar; amputation was therefore delayed. On March 20 the patient was returned to the operating room, at which time it was apparent that amputation of some of the fingers would have to be performed. Guillotine amputation was done through obviously mummified tissue, and the proximal eschars were removed. This procedure was carried out in the hope that spontaneous separation of necrotic from viable tissue would result in greater preservation of the digits.

On April 6 thick split skin grafts from the thighs were applied to portions of both leg stumps. The patient was returned to the operating room on April 12 for skin grafting of the remaining areas of the leg stumps. It was our impression that split thickness grafts did not take as well on frostbite granulation, as had been our previous experience in burn cases. Although the granulation appeared very healthy and compressed, we obtained no better than 60% takes in our grafting.

On May 3 the patient was returned to the operating room, where final débridement of the fingers was done. The only completely normal digit of the hands that remained was the left thumb, which underwent several episodes of peeling as well as loss of the nail. The four fingers of the left hand remained only as stumps of the proximal phalanges. Tissue loss on the right hand consisted of the loss of all digits, including the heads of all metacarpals. The first metacarpal was necrotic in its distal half. All that remained of the right hand was the palm.

Subsequent care consisted of dressings and treatment of a Pseudomonas aeruginosa infection of all wounds with dilute acetic acid at each dressing. Under careful guidance of special nurses the patient learned to hold a fork and spoon in her left hand by means of opposing the thumb to the stump of the forefinger. She soon learned to hold a pencil and crayons in this manner and underwent a systematic process of learning to write. Occupational therapy consisted of teaching her to control implements of various types and to make such objects as leather folders.

On May 20 physical therapy was begun. The result was excellent, in that full range of motion of both knees and both wrists was obtained within a short time.

The patient complained about gaining too much weight and asked to be placed on a reducing diet. Her frame of mind was excellent, and it improved as she learned to do things with the remaining thumb. The appearance of the extremities on June 28, 1951, is shown in Figure 10. The lower limb stumps were revised on July 16 to accommodate prostheses. The patient was discharged to a convalescent home on Aug. 8, 1951, six months after admission, where she awaited fitting of lower limb prostheses.

COMMENT ON POST-HYPOTHERMIC SEQUELAE

The sequelae that have been described in this case were apparently much severer than those described in previous reports of human hypothermia. They occurred in the presence of what we believe can be considered good present day treatment.

The severest physiologic sequelae in our case occurred within the two-week period following exposure. They were reflected in most of the body systems, predominantly in electrocardiographic changes and in alterations in water and electrolyte metabolism. During this period there occurred an apparent hypervolemia with concomitant hypertension, sodium retention, and azotemia. Attempts to analyze the basis for these deviations from the normal led us to the supposition that actual anatomic damage to the kidney was superimposed on the functional derangements in such organs as the adrenal gland, the kidney, and the heart. This damage was evidenced by the presence in the urine of degenerated renal cells containing fatty droplets, which appeared in the early post-hypothermic period. In another sense, the presence of gangrenous peripheral tissues (hands and legs) may have superimposed further functional deviations through absorption. Evidence for this may be seen in the extremely high potassium excretion and the disappearance of hypertension after the amputations.

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[23] Laufman, H.: Pathological Findin Case of Pr d Hypothermia with Severe Frostbite, unpubli

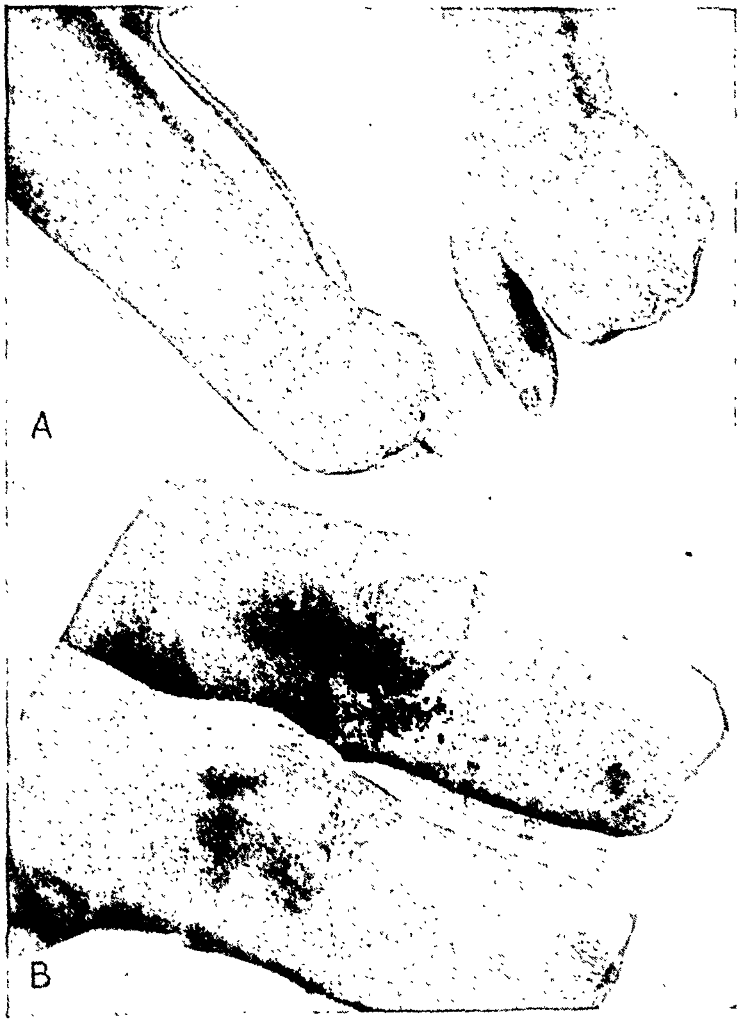

Fig. 10.—Final appearance of hands and legs on June 28, 1951, after healing of extensive skin grafting. Motion in all joints was excellent.

The destruction of peripheral tissues due to frost injury presents a difficult therapeutic problem insofar as it is necessary to balance the ill-effects from absorption against a conservative surgical standpoint in which one wishes to preserve the maximum amount of tissue by allowing demarcation to take place.

It appears that some of the views concerning the pathogenesis of frostbite injury to tissues in milder cases require reevaluation when applied to severer cases. For example, in milder cases the loss of viability in peripheral tissue following frostbite is apparently the result of vascular spasm and thrombosis.[24] Observations in a severer case, such as ours, indicate that the loss of viability resulting from direct thermal injury is more responsible for irreversible damage to tissue than is vascular occlusion. Evidence for this is based on the presence of patent, spurting arteries in the midst of necrotic muscle tissue at the time of débridement, as well as the pathologic findings in the amputated lower extremities. At least as far as muscle involvement is concerned, we consider thermal injury rather than vascular occlusion the cause for tissue necrosis in this case. This view coincides with that of Stein [25] and with recent experimental work of Lewis.[26] We found viable superficial granulation tissue and grossly viable fascial structures with underlying necrotic muscle. We feel that this can probably be explained by the fact that muscle is a highly specialized tissue that cannot recover as muscle tissue. It either is destroyed or heals b connective tissue scar. Thus identical exposure of muscle and other less specialized tissue can result in destruction of muscle tissue and not of other tissue.

Anticoagulant therapy was begun 12 hours after admission and continued for some 22 days at therapeutic levels. Yet this therapy had no observable effect on the preservation of tissue. Recent work has indicated that anticoagulant therapy, if begun early enough, is of value in milder cases of frostbite.

We cannot explain the fact that one digit retained its viability despite the fact that it underwent the same apparent degree of frostbite and exhibited the same earl stages of tissue change as did the other digits. There appears to be an urgent need for intensive animal experimentation to answer several of the questions raise by the study of this interesting case. We feel that such experimentation should concentrate on physiologi studies and treatment of the more profound degrees o hypothermia and frost injury to tissues, since it appear from our study that conclusions reached in much of th work on milder degrees of cold exposure do not appl to the severer types.

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24. Shumacker.[9d] Crismon and Fuhrman.[9f] Lange and Boyd.[10b] Friedman, N. B.: The Reactions of Tissue to Cold, Am. J. Clin. Path. 16: 634, 1946. Friedman, N. B., and Kritzler, R.: The Pathology of High Altitude Frostbite, Am. J. Path. 23: 173, 1947.

25. Stein, I.: Cold Injuries, Arch. Phys. Med. 28: 348 (June) 1947.

26. Lewis, R. B.: Pathogenesis of Muscle Necrosis Due to Experimental Local Cold Injury, United States Air Force School of Aviatio Medicine, Proj. Rep. No. 21-23-006, May, 1951.

Genetics and the Environment.—One of the earliest and farthes reaching fallacies in the philosophical approach to human prob lems was the belief that if a genetic basis were demonstrated fc a certain trait, that trait could not be subject to environment modification; and conversely, if a trait were shown to be influ enced by the environment, it could not at the same time b genetically determined. Although many of us have for yea called attention to this fallacy, it still crops up in the literatur especially that of medicine, sociology, psychology, and educatio

There is usually an element of fear present in the case of th heredity-environment fallacy. For the physician, there may b a certain reluctance to accept the genetic basis for a disease o anomaly on the grounds that it would thereby be useless t attempt therapy. For the sociologist or psychologist, the reluc tance involves the fear that new or changed attitudes could nc be brought about if there were any genetic basis for the origina development of individual differences in behavior.—Laurence H Snyder, M.D., Old and New Pathways in Human Genetics, *Th American Journal of Human Genetics*, March, 1951.

RECURRENT THROMBOPHLEBITIS IN OBSCURE MALIGNANT TUMOR OF THE LUNG

REPORT OF FOUR CASES

Martin M. Fisher, M.D., New York, Lew A. Hochberg, M.D.
and
Nathan D. Wilensky, M.D., Brooklyn, N. Y.

In a review of the literature on thrombophlebitis it was noted that Trousseau[1] observed that recurrent phlebitis may be the first sign that obscure carcinoma of a visceral organ is present. He attached diagnostic significance to the occurrence of thrombosis in cancer, demonstrating instances of latent cancer of the stomach in which peripheral venous thrombosis was the first symptom to attract attention, as indeed it was in Trousseau himself, who died of gastric cancer. Gouget[2] reported a case of widespread venous thrombosis of eight months' duration; it was the only affection observed during the patient's life, but at necropsy a small gastric cancer was found. Osler and McCrae[3] observed absence of gastric symptoms and 15 different thrombosed veins in a latent case of gastric carcinoma with profound and progressive anemia. Welch[4] in his review emphasized that thrombosis is a recognized complication particularly associated with cancer. He stated that latent and milder types of venous thrombosis of the extremities occurred in cancer and cachectic states, while the severer manifestations of thrombophlebitis occurred in infectious diseases and post partum. He also noted instances of pulmonary infarcts with the latent mild thrombophlebitis of cancer. James,[5] Smith,[6] and Thomson[7] later confirmed this observation. Haward[8] reviewed the incidence of fatal venothrombosis in 2,903 consecutive autopsies, wherein he concluded that carcinoma was second as a predisposing factor. Barker,[9] in analyzing 166 cases of peripheral thrombophlebitis, found that carcinoma was the most frequently associated condition. He also emphasized that thrombophlebitis may be the first clinical manifestation of obscure visceral carcinoma, particularly of the lung or pancreas. He further concluded that in elderly patients in whom thrombophlebitis of either small or large veins develops with a minimal periphlebitis reaction, visceral carcinoma should be suspected if no other cause is apparent. Cooper and Barker[10] reported four cases of recurrent venous thrombosis with obscure visceral carcinoma. One of their patients had a carcinoma of the lung, which was not diagnosed until the autopsy; the carcinoma almost completely occluded the superior vena cava and right main bronchus. The first symptom had been a thrombophlebitis of the calf, which had preceded localization of the tumor in the leg by 18 months. There had been widespread repeated episodes of thrombophlebitis, involving in rapid succession the superficial veins of both lower extremities, the right basilar, axillary and subclavian veins. The patient's symptoms, signs, and x-rays pertaining to the chest had been interpreted as a pulmonary infarct because of the frequent thrombotic phenomena.

The following histories illustrate incidences of thrombophlebitis, antedating primary pulmonary neoplasm, which failed to respond to adequate anticoagulant therapy. Three of the patients had recurrent thrombophlebitis and were considered at one time to have thromboangiitis obliterans.

REPORT OF CASES

CASE 1.—I. R., a 43-year-old white man, was admitted to a hospital on Feb. 28, 1949, complaining of generalized weakness and pain in his left ankle and forearm. Four weeks previously he had had a hemorrhoidectomy after considerable rectal bleeding. His hemoglobin at that time was 56%, and his red blood cell count, 2,450,000.

At the time of this hospitalization, physical examination revealed a well-developed, well-nourished white man. There were no significant positive findings on admission and the patient was treated as a post-hemorrhoidectomy convalescent, with a secondary anemia.

Three days later there was noted a tender reddened area over the right triceps muscle. This subsided in two days. On the next day pain in the right calf and right forearm indicated a palpable vein in the right forearm. At this time a positive Homans' sign was elicited in the calf. A complete roentgenographic study, including x-rays of the chest and gastrointestinal tract, and a blood study were noncontributory.

Two days later there were phlebitic lesions of the lesser saphenous vein of the right leg and of the right elbow veins, associated with tender palpable veins with streaking along their courses. By this time the phlebitis of the right forearm and calf had subsided. Two days later an area of induration and tenderness was noted in the left posterior thigh region. A week later, thrombosis of the right external jugular vein was observed. The vein was tender and palpable for 3 cm. This was the seventh independent thrombosed vein found in 17 days of observation.

From the Medical Service of Dr. Joseph G. Terrence and Chest Surgical Service of Dr. Lew A. Hochberg, of Kings County Hospital, Brooklyn, N. Y.

Drs. William Dock, Joseph G. Terrence, Milton Kaplan, and Jacob Plotkin cooperated in the preparation of this paper. Miss Marie Piccione gave technical assistance.

[1] Trousseau, A.: Clinique médicale de l'Hôtel-Dieu de Paris, ed. 5, Paris, J. B. Baillière et fils, 1877, vol. 3, p. 94.

[2] Gouget, W.: Bull. Soc. Anat. **13**:203, 1894; cited by Welch, W. H.: Thrombosis, in A System of Medicine, by Many Writers, edited by Allbutt, T. C., and Rollston, H. D., London, Macmillan & Co., Ltd., 1909, vol. 6, p. 691.

[3] Osler, W., and McCrae, T.: Cancer of the Stomach: A Clinical Study, Philadelphia, The Blakiston Company, 1900, vol. 57, p. 204.

[4] Welch, W. H.: Thrombosis, in A System of Medicine, by Many Writers, edited by Allbutt, T. C., and Rollston, H. D., London, Macmillan & Co., Ltd., 1909, vol. 6, p. 691.

[5] James, T. G. I., and Matheson, N. M.: Thrombo-phlebitis in Cancer, Practitioner **134**:683, 1935.

[6] Smith, R. E.: A Case of Latent Carcinoma Causing Multiple Migratory Venous Thromboses, Guy's Hosp. Rep. **82**:437, 1932.

[7] Thomson, A. P.: Thrombosis of the Peripheral Veins in Visceral Cancer: A Tribute to Trousseau, Birmingham M. Rev. **12**:259, 1937.

[8] Haward, W.: The Hunterian Lectures on Phlebitis and Thrombosis, Lancet **1**:650, 1906.

[9] Barker, N. W.: Thrombophlebitis Complicating Infectious and Systemic Diseases, Proc. Staff Meet., Mayo Clin. **11**:513 (Aug. 12) 1936.

[10] Cooper, T., and Barker, N. W.: Recurrent Venous Thrombosis: An Early Complication of Obscure Visceral Carcinoma, Minnesota Med. **27**:31, 1944.

The case was now completely reevaluated. That this was not a true thromboangiitis obliterans could not be ruled out, despite the adequate peripheral arterial circulation as well as the rapidity of the repeated attacks of phlebitis. It was felt that an obscure cancer or disseminated microarteritis, more commonly called periarteritis nodosa, had to be ruled out, even though the rarity of migratory phlebitis in the latter syndrome was understood. A biopsy of a vein in the involved area was performed and reported as negative for disseminated microarteritis and thromboangiitis obliterans, but the trichinosis precipitin test was positive in a titre of 1:640. We felt, therefore, that we were dealing with an obscure cancer.

One week later the patient's left calf swelled to twice the circumference of the uninvolved leg. There was pain in the left thigh with marked tenderness in the left calf. Homans' sign was positive. The left femoral vein was palpably thrombosed. This was the eighth site of a phlebitic lesion, the previous seven having all subsided. X-rays of the thoracic and cervical vertebras were repeated and revealed a metastatic lesion of the fourth lumbar vertebra. Heparin and bishydroxycoumarin (dicumarol®) therapy were instituted to prevent further thromboembolic phenomena. Two days later an anterior chest pain developed, which was diagnosed as a small pulmonary infarct. Eight days after administration of adequate anticoagulants, edema of the left ankle was noted. This was associated with pain and calf tenderness. The swelling progressively extended beyond the knee to the inguinal region. At this point the patient began to fail rapidly. X-rays of the chest were repeated and a diagnosis of a primary carcinoma of the lung was made. Three days later, while still under anticoagulants, the patient reported pain in his right foot. On the next day the left foot became painful and cold and lost sensation. In 48 hours, gangrene of the right foot set in, and the next day there was bilateral foot gangrene. The patient became more cachectic and died on April 15, 1949.

At autopsy a peripheral adenocarcinoma of the right lung was found. The tumor was found in the most superior portion of the right lower lobe and measured but 1 cm. in its greatest diameter. In the left lower lobe there was a pulmonary infarct. Metastatic carcinoma involved the fourth to the eighth thoracic vertebras and the fourth and fifth lumbar vertebras, including the superior portion of the sacrum.

The small 1-cm. lesion found at autopsy was not recognized early on a routine roentgenogram of the chest. It is noteworthy that the symptoms referring to the chest were not present until development of a pulmonary infarct.

The absence of symptoms referable to the chest does not exclude the possibility of a primary cancer of the lung. Primary tumor of the lung in the parenchyma or periphery rarely presents many symptoms. The size of the primary lesion bears no relation to the possibility of diffuse metastasis.

Although the pathologist was unable to demonstrate local venous thrombosis at the areas of metastases, we feel that the venous stases at these areas predisposed to the thrombophlebitis.

In this patient, we observed 10 different thromboembolic phenomena involving all four extremities, including a pulmonary infarction and bilateral foot gangrene. Despite adequate anticoagulant therapy, we observed no effect in preventing further thromboses. The new thrombophlebitis preceded the localization of the primary focus in the lung by one and one-half months.

Case 2.—V. G., a 43-year-old male butcher, was referred to us by Dr. Milton Kaplan. While at work, the patient had scraped his left leg on a metal corner. He had immediately consulted a physician, who had treated him for a phlebitis of the left le This had subsided in four days. Several days later a phlebi of his right leg had developed, which had subsided in thr days. A week later there was development of phlebitis of t left arm. He had then been hospitalized with a provisional dia nosis of thromboangiitis obliterans. One week later, after ho pitalization, a sudden pain occurred in the right part of chest, which was treated as a pulmonary infarct of the rig lung. X-ray of the chest confirmed the infarction. At this tir anticoagulant therapy was instituted. After one week, desp adequate anticoagulant therapy, there was a recurrence of t phlebitis in his left leg. This was greater in extent and intens than the previous involvement, with marked edema associat with swelling up to the loin. This phlebitis subsided in one we and the patient was then discharged for home care. After bei home for two days, he suffered an intense back pain localiz at the level of the lower thoracic vertebras. He was then reh pitalized. X-rays of the thoracic vertebras were interpreted showing a mild osteoarthritis of the eighth thoracic vertebra.

After he had been in the hospital for six weeks, he continu to run a low-grade fever. During this time, he had lost 40 (18 kg.). His clinical picture was reevaluated, and the suspici of a cancer or a chronic pancreatitis was entertained. While t patient was in the hospital, six months after the onset of t original illness, a chain of palpable lymph nodes developed his left cervical and supraclavicular regions. Simultaneous there was a recurrent phlebitis of the right brachial vein, whi subsided in four days. Then a cervical lymph node was remov and reported as metastatic adenocarcinoma. Review of the pre ous x-rays of the chest taken for the pulmonary infarct, in vi of the biopsy results, made us suspect the presence of a neoplas On April 1 Horner's syndrome on the left side and paralysis the right side of the face with developing hoarseness were not By the next day the patient was barely able to utter soun and 24 hours later a complete right hemiplegia developed. family took him home with the knowledge that he would shortly. The day after leaving the hospital, he lapsed intc coma and died.

Autopsy findings revealed a large circumferential peribr chial adenocarcinoma, 5 cm. in diameter, in the right up and middle lobes. There was marked enlargement of the med stinal lymph nodes, each 3 cm. in diameter. The right lung ba which was the location of the previous pulmonary infarct, necrotic. The brain had a small pea-sized encysted area of tun tissue in the left parietal region. There was metastasis to eighth thoracic vertebra.

A thrombophlebitis developed in this patient's l which originally appeared to be the result of traun Subsequent to this, there was rapid development o thrombophlebitis in the opposite leg, a pulmonary farct, thrombophlebitis of both upper extremities, a then an iliofemoral thrombosis. Adequate anticoagul therapy had no effect in preventing the thromboembc phenomena. This patient likewise had metastasis to thoracic vertebras. The recurrent thrombophlebitis p ceded the recognition of the primary focus in the lung six months.

Case 3.—E. S., a 42-year-old white man, was referred to of us by Dr. Jacob Plotkin. The patient complained of pair the right leg of 10 days' duration, associated with intermitt claudication. Physical examination was essentially negative. oscillometric readings were normal. There was no evidence thrombophlebitis; nor were there symptoms referable to chest at this time. Three months later, in Aug. 1947, the pati returned with evident thrombophlebitis of his left leg associa with swelling, streaking and a palpable vein. The diagnosis thromboangiitis obliterans was made. Intravenous typh therapy was instituted, and the patient was advised to stop sm ing. One week later, after he had received five injections typhoid vaccine, the thrombophlebitis subsided. Despite typhoid therapy, after another week streaks over the inner aspect of the right elbow and left ankle were noted. After four more days thrombophlebitis subsided in these areas.

One month later the patient complained of pain in the right part of his chest. He was then reexamined and fluoroscoped, whereupon elevation of the right dome of the diaphragm was noted. He was then hospitalized for further investigation. After he had been in the hospital for two weeks, a right pleural effusion developed which produced dyspnea. The chest was tapped and 250 cc. of clear, colored fluid was removed. A cell block was made of the sediment, which was found to contain many abnormal cells with mitotic figures. This was reported as anaplastic carcinoma of the lung. X-rays of the chest following the removal of the fluid revealed a definite mass 8 cm. in diameter in the right middle and upper lobes of the lung. This was interpreted as a primary malignant tumor of the lung. The patient began to fail rapidly. During this time multiple areas of recurrent thrombophlebitis developed in his upper and lower extremities. The thrombophlebitis recurred and disappeared in rapid succession. He was sent home after two months of hospitalization and died three months later after developing a superior vena cava syndrome, as well as convulsive seizures. No autopsy was performed.

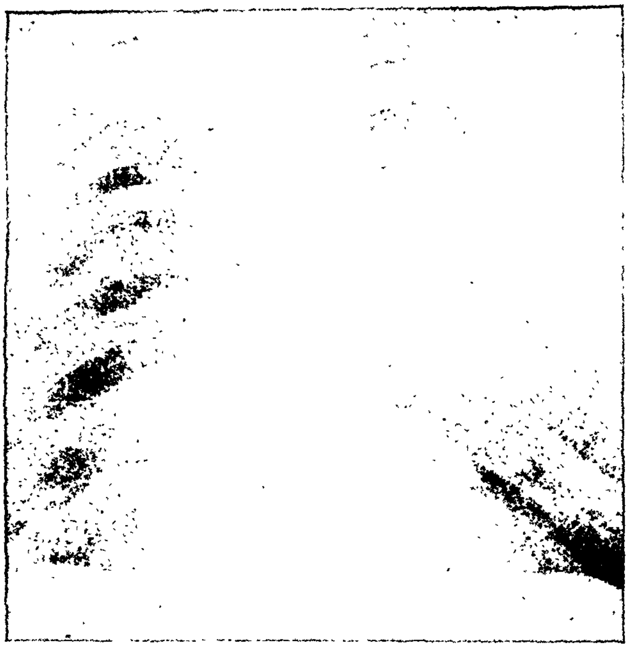

Fig. 1.—Posterior-anterior view of the chest. Note the large circular mass in the left lung field.

This patient, like the other two, had recurrent thrombophlebitis with many different bouts; each was of short duration and subsided spontaneously. The thrombophlebitis preceded the identification of the primary tumor in the lung by four months.

Case 4.—J. K., a 66-year-old man, was first seen when he complained of the painful swelling of his right ankle, of three months' duration. The pain in the ankle was located along the medial malleolus, with swelling extending up to the calf. There were calf tenderness and a positive Homans' sign. Two and one-half months after the onset of the thrombophlebitis he developed a cough and dyspnea.

The patient was hospitalized and a diagnosis of carcinoma of the lung was made (Figs. 1, 2 and 3). X-rays showed a large mass 10.5 cm. in diameter in the left lung. Pneumonectomy was performed and the diagnosis of carcinoma of the lung confirmed. The patient was discharged after two weeks and his follow-up for nine months postoperatively was uneventful.

This patient had but one episode of thrombophlebitis, which preceded the diagnosis of the primary lung tumor by three months. There has been no recurrent episode of thrombophlebitis since the removal of the primary focus.

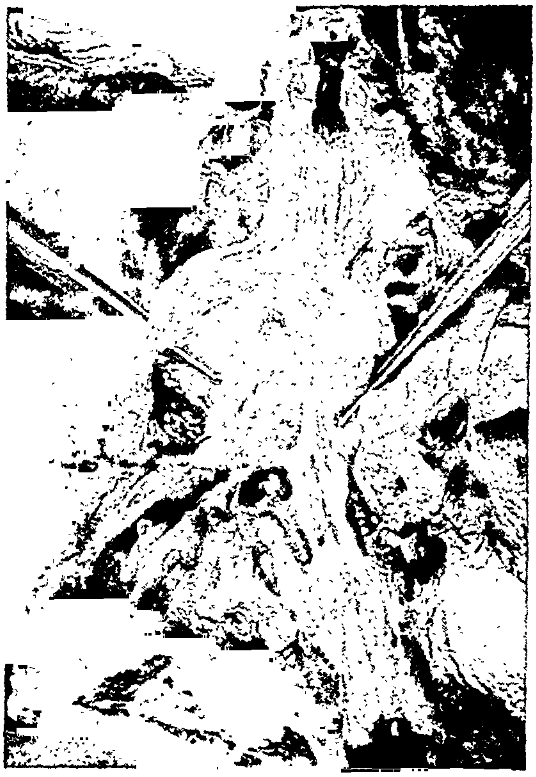

Fig. 2.—Close-up of the pneumonectomized left lung, revealing the shiny, white, infiltrating, gross appearance of the tumor tissue.

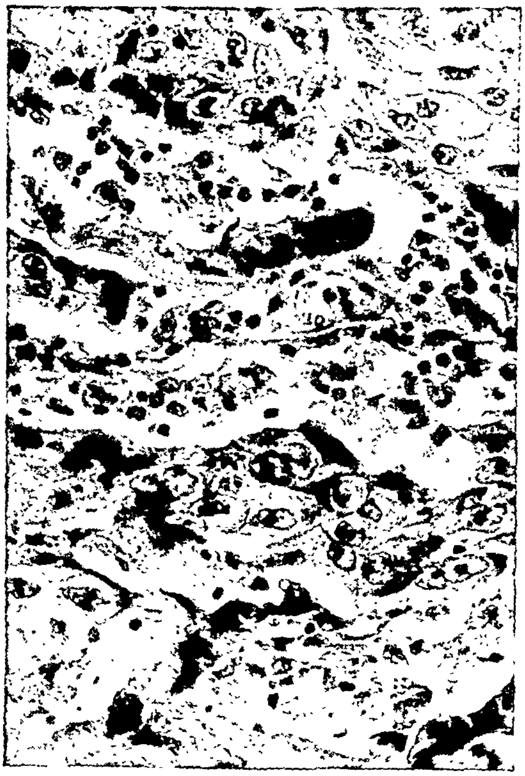

Fig. 3.—Primary adenocarcinoma of the lung, evidenced by cell structure (× 367).

COMMENT

Clinically, lesions of superficial thrombophlebitis associated with carcinoma are characterized by thrombosis of the vein with little evidence of inflammatory reaction, and they subside in a few days. Usually they can be distinguished from the lesions of idiopathic recurrent thrombophlebitis and from those of superficial thrombophlebitis that occur in thromboangiitis obliterans. The histological picture of thrombophlebitis associated with carcinoma reveals relatively few fibroblastic cells in the thrombus and only a minimal degree of inflammatory reaction in the media and adventitia coats of the veins. This picture would indicate why this type of phlebitis clears up after a few days with little residuum, whereas lesions of superficial thrombophlebitis show much more fibroblastic proliferation and slower resolution.

In the last 10 years at the Kings County Hospital, there have been 934 known cases of carcinoma of the lung; of this group, 525 patients died of carcinoma of the lung. Cancer of the lung is so closely linked to the modern attack on other types of cancer that some observers [11] believe that this disease is actually increasing. Others [12] argue that it is only being identified more accurately in recent decades. All [13] agree that it is more frequently encountered and is one of the most important types of malignant disease in the male, second only to cancer of the stomach. There is no explanation for the remarkable fact that primary cancer of the lung is six to eight times as common in men as it is in women. The actual cause of lung cancer is as obscure as that of thromboangiitis obliterans.

As with other neoplasms, early diagnosis is of paramount importance. The diagnosis of a parenchymal lesion is often overlooked for long periods because of the paucity of symptoms and signs relative to the chest. Routine x-rays of the chest may not give definitive information in early cancers of the lung, but tomography may. Bronchoscopy may reveal early cancers in the large bronchi in about 60% of the cases. The microscopic examination of the sputum for cancer cells has gained in accuracy in the hands of trained diagnosticians, making available another adjunct for early diagnosis of cancer of the lung. Occasionally the shadow cast by x-rays is sufficiently suggestive of a tumor. Serial x-rays are indicated on suspicion alone.

The present methods used for determination of increased coagulation of the blood have failed to give any accurate approaches to the treatment of thromboembolic phenomena. Recently, Ochsner and DeBakey [14] reported the use of aqueous alpha tocopherol intramuscularly and calcium intravenously to control the antithrombin titre and thus prevent further thromboses. Further investigation should help confirm their valuable findings.

Sproul [15] found in a post-mortem study of 200 cases of carcinoma of the kidney that the renal vein or vena cava was involved in 22.5% of the cases. Sproul also reported thrombosis present in 56% of cases of carcinoma of the body or tail of the pancreas. In 31% of the cases, thrombosed vessels were observed in various parts of the body. It was assumed that some change in the coaguability of the blood must occur in many of these cases of carcinoma associated with thrombophlebitis.

It is worthy of emphasis that recurrent thrombophlebitis of the patients reported herein preceded the localization of the lung tumor by one and one-half to six months. The phenomenon may have occurred at a stage too early for detection of the neoplasm and antedated any definite signs or symptoms of the lesion of the lung.

SUMMARY

We have presented four cases of carcinoma of the lung: All patients were men, three of whom were suspected of having thromboangiitis obliterans, and all had clinical attacks of thrombophlebitis.

It is suggested that recurrent thrombophlebitis of adult males should be considered as a warning sign of hidden carcinoma. It is felt, as a result of this study, that early recognition of the second attack of thrombophlebitis, regardless of its location, mildness of intensity or shortness of duration, should result in a thorough and continuous study to rule out a developing cancer of the lung. It is our opinion that many of those patients who were previously considered to have had recurrent idiopathic thrombophlebitis, if studied persistently, would have been found to have had a latent visceral cancer. It is further suggested that when adequate anticoagulant therapy does not prevent further thromboembolic phenomena, a cancer should be suspected.

44 W. 55th St. (Dr. Fisher).

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14. Ochsner, A.; DeBakey, M. E., and DeCamp, P. T.: Venous Thrombosis, J. A. M. A. **144**: 831 (Nov. 4) 1950.

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Drug Metabolism.—The study of the metabolism of drugs can be valuable, not only in elucidating their mode of action, but also in the search for more useful drugs. One might find that it is better to use as a drug an *active metabolite rather than the* original substance or one might be able to avoid the toxic effects of a drug by modifying its structure so that it does not produce toxic metabolites. . . . Furthermore, the duration of action of a drug may be determined by its rate of transformation to inactive metabolites . . . and it may be possible to synthesize a drug whose duration of activity is known beforehand because one can predict from its structure its metabolic fate. These suggestions, however, presuppose a fund of fundamental knowledge concerning the fate of all kinds of organic structures. This knowledge has, as yet, only been partly acquired, but the prospects of acquiring it with new techniques . . . are bright.—R. T. Williams, *Annual Review of Biochemistry*, Stanford, Annual Reviews, Inc., 1951, p. 442.

APPLICATION OF THE LAND METHOD OF FILM PROCESSING IN ROENTGENOLOGY

PRELIMINARY REPORT

Laurence L. Robbins, M.D.
and
Edwin H. Land, Sc.D., Boston

A new one-step, essentially dry photographic process was publicly described in 1947.[1] The process had certain desirable features that made it applicable to roentgenography. This paper describes a joint program of investigation into certain roentgenologic applications of this process which utilized the technical facilities of the Polaroid Corporation and the medical facilities of Massachusetts General Hospital.

Because the program has amply demonstrated the immediate applicability of the method in particular instances, a preliminary description and discussion is necessary.

PROCESS

The Land process used in radiology is similar in its essentials to that used in amateur photography.[2] Several modifications have been made, however, in the physical form of the materials and equipment.

The process utilizes two sheet materials, a negative sheet bearing a light-sensitive emulsion and a positive sheet on which the permanent positive radiograph is produced. The positive sheet bears a special coating which is not sensitive to light. The Land X-ray Pack consists of a negative and a positive sheet, joined to a common leader. The negative sheet is enclosed in a light-tight black paper envelope to permit handling and loading in daylight.

The necessary processing reagents, in the form of a viscous jelly, are contained in a thin pod attached to the leading edge of the positive sheet. The pod is hermetically sealed to protect the reagents against moisture and water vapor before use. It is so constructed, however, that when it is subjected to pressure it will burst along one edge and permit its contents to spread between the sheets to form a thin "sandwich."

A special cassette has been developed for this pack. In appearance it resembles a standard casette and may be handled as such after loading, which may be done without the aid of a darkroom.

Only one intensifying screen is required, since only a single emulsion coat is to be exposed. The screen is removable. To load the cassette, the back is removed, the pack laid within, and the intensifying screen placed between the negative envelope and positive sheet. The back of the cassette is then attached and latched, and the black envelope is removed from the negative by pulling a tear-string and withdrawing it through the end of the cassette. Pressure is then applied by means of a lever to assure uniform contact between the screen and the sensitive emulsion. The cassette is now ready for exposure in the ordinary way (Fig. 1).

After exposure, the cassette is placed in a small box, the chief function of which is to withdraw the pack, but not the intensifying screen, from the cassette and pass it between motor-driven rolls into a compartment where development takes place (Fig. 2). The rolls break the pod, causing the reagent to spread in an extremely thin, uniform layer between the negative and positive sheets. Processing is complete within one minute, after which the sandwiched sheets are taken from the box and peeled apart. The negative sheet is discarded, while the positive sheet, instantly dry, is ready for examination.

The personal labor factor is practically nil. The technician need only place the cassette in the box, relieve the pressure on the pack, and press the motor switch. The rolls stop automatically.

During the one-minute development period, a complex set of reactions takes place. The developer present in the reagent reduces the exposed silver halides of the negative emulsion to metallic silver. Meanwhile sodium thiosulfate (hyposolution) also present, dissolves the unexposed halide to form a silver halide complex. The silver of this complex is deposited in the form of metallic silver upon the positive sheet to produce a positive of the developed negative. Owing to the extreme thinness of the reagent layer and the fact that the images formed are produced in the surface layers of the sheet materials, the reactions involved run to completion rapidly, and minimum opportunity is afforded for degradation of the positive image from random migration of the dissolved silver halide complex. Thus, accurate duplication of the developed negative image with a reversal of density values is obtained upon the positive sheet.

In one form of the process, heavy metal sulfides aggregated in galaxies of chosen diameter and so maintained throughout the process are used cyclically to deposit the silver of the silver thiosulfate complex in arrays of desired diameter and constancy of diameter. The less readily reducible thiosulfate transports the silver ions from the negative and gives up its silver to the heavy metal sulfide at the site of the positive to form the more readily reducible silver sulfide. The reduction of the silver sulfide completes a chain of reactions in which the thiosulfate and the silver ions are freed for further reaction. Cyclic use of sodium thiosulfate and sulfide and the preservation of the sulfide ion by the presence of an excess of metal ions makes possible the formation of a dense image with but trivial amounts of silver solvent and sulfide ion. Integrated with these reactions are further chemical mechanisms which operate to give the positive print acceptable permanence without aftertreatment.

Director of Research, Polaroid Corporation (Dr. Land).
Radiologist-in-Chief, Massachusetts General Hospital (Dr. Robbins).
Read before the Section on Radiology at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 15, 1951.

[1] Land, E. H.: A New One-Step Photographic Process, J. O. S. A. **37**: 61-77 (Feb.) 1947.

[2] Land, E. H.: One-Step Photography, Photographic Journal **90-A**: 7-15 (Jan.) 1950.

APPLICATION TO ROENTGENOGRAPHY

Technical Details.—At the present time the x-ray exposure is made with higher factors (as much as 8 to 15 kv.) than would be employed for ordinary x-ray film in a similar examination. It seems reasonably certain, however, that in the future the factors can be reduced to the same as, or possibly even less than, those used with conventional film. One-minute processing, coupled with daylight loading, results in a marked decrease in time over other types of processing which have been tried in the Massachusetts General Hospital. Therein lies the great advantage of the method. Speed is of course extremely valuable in operating room procedures such as the nailing of fractured hips, the reduction of fractures, and the removal of foreign bodies. The method was successfully employed during nailing of hip fractures and it was estimated that because of it at least one hour was saved, thus shortening the operating as well as the anesthesia time.

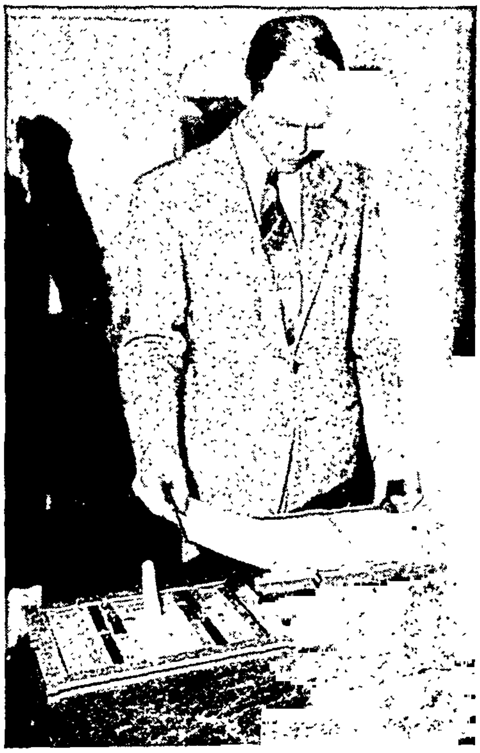

Fig. 1.—Daylight loading of cassette.

The method has practical value also in the examination of traumatic conditions suffered by patients admitted to the emergency ward. In seriously injured or acutely ill patients, the availability of a roentgen examination which furnishes within one minute's time an image of the part in question may well prove lifesaving.

If a gross fracture is clearly demonstrated by the rapid processing technic, no further examination may be needed. If no fracture is recognized, however, in order to satisfy appropriate conservatism as regards the care of the patient and until further experience has proved the absolute consistency of this particular method, the routine roentgenographic examination is carried out.

There also appears to be immediate usefulness of the process in other fields of endeavor, particularly the military.

Comparison of the Method with Routine Examination.—Up to the present time, check-up study has confirmed the findings of the faster method. It would seem that approximately the same amount of information is obtainable from a properly exposed positive print as from the usual x-ray film, although it may take somewhat longer to recognize the abnormalities (Fig. 3). There is perhaps slightly less latitude permissible with the use of paper prints than with ordinary film; the technician must be even more accurate in selecting the correct exposure factors. The contrast range with the two technics is fairly comparable when the proper exposures are made. Of considerable importance is the fact that definition and detail have been shown to be as good on the paper print as on the ordinary film under optimum exposures.

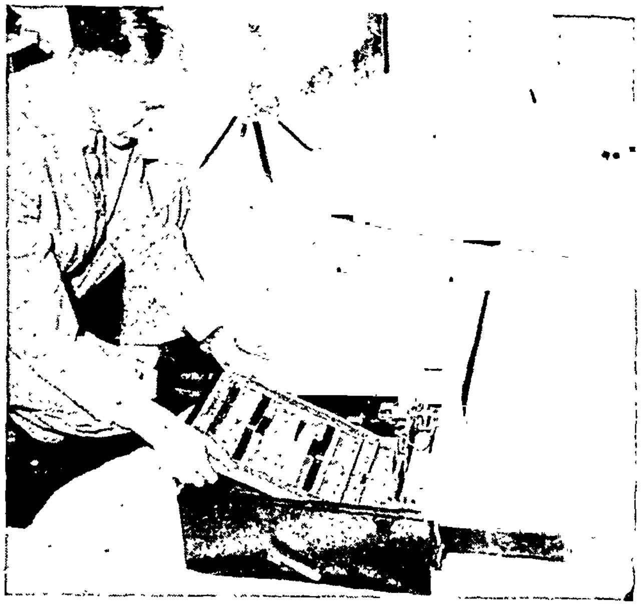

Fig. 2.—Insertion of the cassette into processing unit.

Certain factors limit overwhelming enthusiasm for, and widespread application of, the method to roentgenography. None of these factors, which are briefly reviewed, seems, however, to be irremediable.

1. The fact that the examination is made on paper and therefore requires observation by means of reflected light results in a certain loss of density range which is not presented by the usual transparency. Reflected light m seem inadequate to the roentgenologist, and because this type of lighting his difficulty in obtaining as mu information from the paper print may prove a limiti factor. Since transparent prints made by the proce have already been announced in the camera field, it is be expected that they will be made available for roe genography.

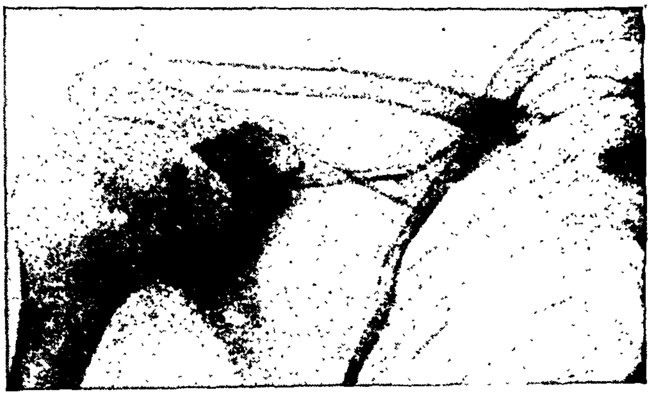

Fig. 3.—Anteroposterior view of a shoulder.

2. Experience has shown that even though roentgenologists are in the habit of seeing positive images fluoroscopically, some may experience a definite aversion to viewing a positive print. Whether this is related to the physiology of rod and cone vision or is simply due to habit is not certain, but there is no doubt that the average roentgenologist prefers to view the object in a negative phase as well as in a transparent form.

3. The present size of the print restricts roentgenographic application of the method. The film packet now available is approximately 9 by 9 in. (23 by 23 cm.), but there is every reason to believe that, in the future, larger sizes, up to 14 by 17 in. (36 by 43 cm.), as well as smaller sizes, will be obtainable. Complete examination of either the chest or the abdomen on a single print is not yet possible; *the optimum present use of the method lies in examination of the extremities and the skull*, and in certain operating room procedures for which the current-sized print is adequate.

4. When prints are to be handled considerably for reexamination, it has been found desirable to lacquer the image-bearing surface of the print, as it scratches somewhat easily. After lacquering, the prints can be handled in any ordinary manner without fear of scratching—that is, it can be transferred from the x-ray department to the wards, handled on the wards in no discriminating manner, and become no more scratched than an ordinary film. Any scratching that has occurred prior to lacquering has not been sufficient to eradicate the pertinent diagnostic points. It is anticipated that the high surface-resistance features of materials now being introduced in other fields will be extended to the materials used for x-ray work so that this lacquering will be unnecessary.

5. Under usual loading conditions the print, in contrast to a transparency, can be viewed only from the position of the x-ray tube. This may again reverse the habit of the roentgenologist, particularly in the examination of the chest, gastrointestinal tract, or gallbladder. It is not, however, a serious drawback as it can be overcome by inverting screen and pack within the cassette.

COMMENT

The future offers opportunities for further utilization of this method of processing. With it, accurate placement of radium needles may be determined in the operating room before the effects of anesthesia have worn off. It has already been used in photofluorography in a modified manner,[3] and its routine application may become possible.

It should be reemphasized that improvements are being made in the method and that it is undergoing constant change and revision. The limitations of today may be overcome tomorrow. It is expected that the future will see the development of varying sizes of film up to 14 by 17 in., the use of a transparent medium as well as paper, and faster emulsions. If required, consideration can be given to the production of the image in the negative, rather than in the positive, phase. When these developments become available, general use of the Land method in the processing of films in roentgenography can be anticipated.

CONCLUSIONS

1. A significant advance in processing of roentgenographs is described.

2. Although there are still certain limitations for general application of the method in roentgenography, none of them appears to be insurmountable.

3. Because of the speed of the method, the time required for roentgen examination can be markedly reduced. This reduction in the time element is advantageous for the roentgenologist, the surgeon, and, more important, the patient.

[3] Weens, H. S.: Personal communication to the authors.

FATAL PAUSE IN DIAGNOSIS OF NEOPLASTIC DISEASE IN PHYSICIAN-PATIENT

Benjamin F. Byrd, Jr., M.D., Nashville, Tenn.

The problem of cancer has, in the past few years, been taken from the realm of darkness and dragged into the public eye. This is the same path that has been followed by poliomyelitis, syphilis, tuberculosis, and many other diseases having both a physical and social implication. A large part of the responsibility for bringing this problem into the public eye has been given to the physician, who in his role as healer and public servant has worked steadfastly toward a better understanding of cancer, its diagnosis, and its treatment. This attitude on the part of the physician toward education, early diagnosis, and treatment is in direct contrast to his actions concerning his own situation in this matter.

The most important sources of professional education and information are schools of medicine and those hospitals having a residency-training program, but beyond these the American Cancer Society conducts an extensive professional education program. In the fiscal year 1949-1950 the American Cancer Society and its various component units spent better than $710,000 for such activities. This program was designed to stimulate interest in the problem of cancer on the part of the physician and to enable him to diagnose earlier and treat more efficiently malignant neoplastic disease. To evaluate the use made by the physician of his education and professional experience, a study was undertaken in two large metropolitan hospitals. The study had as its basis the physician-patient who was admitted to these two hospitals with neoplastic disease. My colleagues and I were interested in the char-

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Aided by a grant from the Davidson County Chapter of the American Cancer Society.

Read before the Section on *General Practice* at the One Hundredth Annual Session of the American Medical Association, Atlantic City
15, 1951.

From the Department of Surgery of the Vanderbilt
Medicine and the Surgical Services of the Vanderbilt
Thomas Hospitals.

acter of the neoplasm, its stage of development, and most especially in the time lapse between the onset of clinical manifestations and the initiation of adequate diagnostic study. The results that were found were on the surface surprising, but with an honest approach one may look within himself and easily find the true explanation.

During the period of 1925 to 1950 a total of 60 physicians were admitted to the two general hospitals concerned in this study. These men came from Northern Alabama, Middle Tennessee, and Southern Kentucky, a group representing a largely rural community. Less than 10% of these men might be called specialists. The other 90% come from the large and essential portion of our medical population in general practice. The primary site of the tumors in these patients is shown in Table 1. As might well be expected in a series of male patients, there are four predominant sites, the most frequent of which is carcinoma of the prostate, the second, carcinoma of the upper intestinal tract, the third, carcinoma of the large bowel, and the fourth, pulmonary neoplasms. There was only one woman in the series, and her presenting symptom was vaginal ulceration of six-months' duration. The distribution of the lesions is not remarkable in itself, but for the four sites principally concerned a breakdown has been carried out as to the extent of the lesion at the time the physician first presented himself for treatment and as to what operative procedure could be carried out at that time. Table 2 shows that only 7 out of a total of 37 patients had primary lesions without either extension to the regional lymph nodes or distant metastases. In only five of these physicians were curative procedures carried out. In fact, 13 patients (Table 3) were deemed inoperable at the time of their original hospitalization. In every instance and without delay the physician consulted made an adequate diagnosis and advised appropriate therapy. There are only two adequate explanations for this situation: (1) physicians as a group have more malignant neoplasms than the average run of the general population, which is difficult to believe, or (2) physicians show a greater negligence of their own disorders than in the management of patients who consult them professionally.

TABLE 1.—*Primary Sites of Neoplasms*

	Number		Number
Prostate	12	Central nervous system	5
Upper gastrointestinal tract	9	Upper respiratory tract	4
Lower gastrointestinal tract	9	Skin	3
Lung	7	All others	11
Total	60		

My colleagues and I carried further the study of the physician-patient and determined for each person concerned the time lapse between the onset of clearly suggestive symptoms and the initiation of diagnostic procedure. By clearly suggestive symptoms are meant those cardinal findings of persistent, severe cough, chest pain, or hemoptysis in the instance of carcinoma of the lung; of jaundice, dysphagia, vomiting, hematemesis, or melena in the instance of carcinoma of the upper gastrointestinal tract; of change in bowel habits, bloody stools, or recurring cramping abdominal pain in the instance of large bowel neoplasm. In every instance the time lapse indicated has been that between the onset of some one or more of these manifestations and the initiation, on t part of the physician-patient, of some effort at diagno or treatment. In Table 4 the average time lapse for ea disorder is shown. In no instance among those patier with large bowel neoplasm did the physician prese himself within the first three months after the onset some characteristic symptom.

TABLE 2.—*Extent of Neoplastic Process at Admission*

	Localized	With Metastases	Tot
Prostate	4 (33%)	8 (67%)	12
Upper gastrointestinal tract	0 (0%)	9 (100%)	9
Lower gastrointestinal tract	3 (33%)	6 (67%)	9
Lung	0 (0%)	7 (100%)	7

TABLE 3.—*Attempted Surgical Treatment*

Location	Curative	Palliative	No Opera tion
Prostate	2	6	4
Upper gastrointestinal tract	0	7	2
Lower gastrointestinal tract	3	4	2
Lung	0	2	5

During the past 10 years 32,737 physicians have di in the United States, of this total 9.89% of the deatl were due to cancer. In fact, 4.04% (Table 5) were d to cancer of the upper gastrointestinal tract alone. T tremendous importance of early diagnosis and tre ment of such prevalent and apparently highly fatal d orders cannot be overemphasized.

It is of interest that this same apparent negliger demonstrated by physicians in the field of neoplas disease is not carried over into various other types illness. Only last year it was pointed out that the diabe person was a "good risk" as a medical student from health viewpoint, that the life expectancy of the kno diabetic physician was only four-fifths of one year l than that of the average physician, and that the avera diabetic physician might well look forward to a l expectancy greater than that of his known medical cc temporary.

TABLE 4.—*Time Lapse Between Onset of Symptoms and Diagnosis, in Months*

Location	Longest	Shortest	Averag
Prostate	36	1	14
Upper gastrointestinal tract	24	1	9
Lower gastrointestinal tract	12	3	7
Lung	18	0	6
Central nervous system	6	1	3

TABLE 5.—*Relative Mortality of Physicians Due to Cancer 1940-1950*

Total No.	Due to Cancer	Due to Upp Gastrointest Tract Cancer Alo
32,737	9.89%	4.01%

Quite possibly this problem should have been proached by a psychiatrist rather than a surgeon, si lack of insight and mental blocks undoubtedly play dominant role. The facts remain that in the presen of neoplastic disease physician-patients present the selves for treatment later and that their cancers have comparably poorer chance of cure than those of t general population.

Vanderbilt University Hospital.

INTEGRATED TEACHING IN THE BASIC SCIENCES

REPORT ON FIVE YEARS' EXPERIENCE

Julius H. Comroe Jr., M.D., David L. Drabkin, M.D., William E. Ehrich, M.D.,
John A. Flick, M.D., Seymour S. Kety, M.D.
and
Wilton M. Krogman, Ph.D., Philadelphia

The Flexner report on "Medical Education in the nited States and Canada"[1] marked a turning point in e history of American medical schools. Among other ings, Flexner found that, at the time of his report, the boratory sciences were too much subordinated to clin- al teaching. This defect was gradually corrected by the hools. However, the Commonwealth Fund, in its nual report of 1950, has noted that the pendulum has w swung to the other extreme and that these sciences w stand too much alone, so that their relation to clin- al judgment is often left unclear in the student's mind. he Commonwealth Fund report emphasizes that

> . . the first two years of medical school are characteristi- lly split into discontinuous fragments and that the student is ven little help in putting them together. In the poorer schools e department may neither know nor care what another teaches. ven in the better ones, each department is for the most part a w unto itself. No school known to the Fund has yet brought the lf dozen medical sciences together into a comprehensible ole; none has thoroughly "kneaded them" as Flexner sug- sted; they remain for the average student pieces of a jig-saw zzle that so far as he knows was not even a whole picture to rt with.[2]

The concept of integrated teaching is not a new one. me schools have already integrated all teaching in a nited field (such as neurology), and many have insti- ted conferences correlating physiology and pathology ith clinical medicine and surgery. Some medical edu- tors have urged the complete breakdown of depart- ental barriers so far as teaching is concerned,[3] but to e best of our knowledge no school has put such a plan to practice.

Five years ago the Graduate School of Medicine of e University of Pennsylvania began an experiment in e integration of the basic medical sciences for instruc- on of graduate physicians. This has proved to be such successful method of teaching that we believe the gen- al plan should be called to the attention of all those terested in medical education. We hope that our ex- rience will give encouragement to medical faculties ho are giving serious consideration to such a program.

DEVELOPMENT OF PLAN

A brief account of the development of the plan may of interest. Within a period of two years, a new faculty as appointed in most of the basic science departments. the year 1946-1947, the newly appointed professor physiology and pharmacology gave a course of 90 ctures in physiology and pharmacology, in which these vo basic sciences were integrated with each other and rrelated with clinical medicine. In the middle of this ademic year a new professor of physiological chemistry as appointed. In addition to completing the regular course in physiological chemistry, he also presented several lectures on related chemical matters in the physiology-pharmacology course. Because this type of coordinated teaching made a favorable impression on the students, the two professors agreed to expand this method of teaching.

In 1947 a new professor of pathology was appointed. He was equally enthusiastic about the concept of coordination of teaching in the basic medical sciences. Consequently, in 1947-1948 the major portion of the teaching in physiology, pharmacology, physiological chemistry, and pathology was integrated completely. Since then, the faculty in the departments of bacteriology, immunology, and physical anthropology have also joined in this teaching program. The departments remain separate for administrative and research purposes, but cooperate in presenting what has now grown to be a lecture course of seven hours a week throughout the 31-week school year for the 300 to 350 student-physicians in the Graduate School of Medicine.

DESCRIPTION OF PLAN

Our students are physicians training to be specialists in one of 19 fields of medicine or dentistry. They receive a considerable amount of highly detailed training in anatomy, pathology, and physiology related to their specific interests, and, because of this, it is impossible to correlate *all* teaching in such a large graduate school of medicine. However, all physicians, regardless of specialty, are required to acquire a thorough understanding of the body as a whole. This is achieved through the "Correlated Clinical Science Course" of 217 lectures, panel discussions, or case presentations each year. The general arrangement of the schedule is on the organ system basis. Physiology, physiological chemistry, pathology, bacteriology, immunology, pharmacology, and physical anthropology are presented together as they pertain, in turn, to the kidney, circulation, heart, blood, lungs, alimentary tract, liver, gall bladder, pancreas, metabolism and nutrition, nervous system, and physical medicine. In certain instances several lecturers may share an hour, so that physiology, pathology, or chemistry, for example, may be presented in logical sequence.

A detailed plan of the approach to one single organ system is given as an example.

From the Graduate School of Medicine, University of Pennsylvania.

[1] Flexner, A.: Medical Education in United States and Canada, Bulletin No. 4, New York, Carnegie Foundation for the Advancement of Teaching, 1910.

[2] Annual Report, New York City, Commonwealth Fund, 1950.

[3] Report to American Surgical Association of Committee on Undergraduate Medical Education, Tr. Am. S. A. **68**: 523-554, 1950. Atchley, D. W.: Orientation of Undergraduate Medical Curriculum, Science **104**: 67-70, 1946.

URINARY SYSTEM

1. Anatomy, histology, and embryology of the kidney, with especial emphasis on the glomeruli, tubules, and circulation.
2. Glomerular filtration: factors influencing glomerular filtration; measurement of glomerular filtration in man.
3. Tubular reabsorption: water reabsorption; clinical disorders involving water reabsorption; the posterior pituitary; glucose reabsorption; glucose Tm (maximal tubular reabsorptive capacity); chemical factors involved in glucose reabsorption; reabsorption of sodium and chloride.
4. Tubular excretion: production of acid and ammonia by the kidney; para-aminohippuric acid clearance; drugs excreted by tubules.
5. Renal blood flow: methods for measuring; factors regulating renal blood flow.
6. Clinical examination of the urine: hematuria, albuminuria, and casts.
7. Pathology of the glomeruli and tubules: nephritis, nephrosis, lower nephron ischemia, nephrosclerosis.
8. Correlation of old and new renal function tests with physiological, chemical, and pathological studies in renal disease.
9. Renal insufficiency: uremia; anuria; management of anuria and renal insufficiency; artificial kidney.
10. Acidosis. This includes a presentation of acid-base (ionic) balance in general, renal acidosis, and other types of clinical acidosis; compensatory mechanisms involved in clinical acidosis; treatment of acid-base imbalance; parenteral fluid therapy.
11. Edema: hypoproteinemia; protein deficient states and their management; diuretics.
12. Renal pelvis and ureters: physiology, pharmacology, and pathology.
13. Urinary bladder: physiology; clinical disorders of bladder function; pathology.
14. Infections of the kidney, pelvis, ureters, and bladder.
15. Prostate gland: physiology; endocrinological relationships; hypertrophy, carcinoma, and infection; treatment.
16. Panel discussion. Questions are submitted by the class and answered by the basic science faculty group as a panel. Differences of opinion that arise are debated in a friendly spirit.
17. Case presentation. Selected cases of renal disease are presented by a clinician and discussed by the clinician and the basic science faculty as a group.

ADVANTAGES OF PLAN

The change from the usual method of presenting the basic sciences as separate, unrelated courses, in favor of this integrated course is considered to be a significant step forward in medical education. It has enabled the student physicians to see clearly the integration of the various basic sciences and their correlation with clinical medicine. Student-physicians in anesthesiology, dermatology-syphilology, gastroenterology, general surgery, gynecology-obstetrics, internal medicine, neurology-psychiatry, ophthalmology, oral medicine-periodontia, oral roentgenology, oral surgery, orthodontics, orthopedics, otolaryngology, pediatrics, physical medicine, prosthetics, radiology, and urology have ranked the course each year as among the most popular of all the courses presented in the school. In addition, a number of members of the clinical faculty and their residents, and members of the faculty of the undergraduate medical school, have found it profitable to attend these lectures regularly. The course has also been highly stimulating and rewarding to the basic science faculty members themselves because the success of such a course requires that the faculty in each division attend lectures throughout the first year, an intervals thereafter. Each faculty group has obtain clearer concept of the whole picture and has learne relate its own special field to those of the other me sciences. The outlook of the faculty members has broadened not only in the field of teaching but als research.

EXPANSION OF PLAN

The plan has not yet been carried to its logical pletion. At the moment anatomy is not included, th it is hoped that a rearrangement of schedules may pe the inclusion of lectures on anatomy. The clinical partments are not included now in the plan of integr teaching except insofar as clinicians participate in presentations.

The coordinated program of teaching requires of the faculty's time than the current system of prese courses as a block. This results from the additional ning and from attendance at all lectures, panel dis sions, and case presentations. Correlation of basic sc with clinical teaching would require further participa in ward walks and clinical seminars. Even though total number of hours may not be increased greatly, distribution would probably be such as to reduce the available for concentrated research. The complete gram may lead to the necessity for larger faculty gr to avoid a decrease in research achievement.

APPLICATION TO UNDERGRADUATE EDUCATION

Can such a plan be applied to undergraduate me education? All of us have had extensive experienc undergraduate medical education, and we believe integration of both lectures and laboratory work in basic science courses of the first two years can be acc plished by any faculty genuinely interested in this type of medical education. Integrated teaching migh accomplished by any one of a number of programs. such program might begin directly with consideratio one organ system from all points of view. Another m begin with an introductory portion in which each o departments would present the following material: a omy department, developmental anatomy or embryol microanatomy department, histological structure histochemistry of cells; physiology department, cell physiology; physiological chemistry department, the ture of enzymes, catalysts, and cellular reactions in eral; pharmacology department, modes of action of d on cellular structures; pathology department, the na of abnormal cells and neoplasia; bacteriology departm anatomy, physiology, and chemistry of bacteria; and munology department, antigen-antibody reactions. lowing this introduction, the faculty would prese logical sequence all important information relating to organ system, and then to another, until all systems been discussed. Thus the anatomist would present gross anatomy of the organ system; the microanato its microscopic structure; the physiologist, its no function; the physiological chemist, its chemical pro the pathologist, the disordered structure and func and the bacteriologist, the role of bacteria and infec At this point, some participation by clinicians woul in further correlation. The pharmacologist could then elucidate the effect of drugs on normal and abnormal man.

Laboratory work can be scheduled to integrate with the lectures and conferences. With some organ systems (kidney, for example) an equal amount of laboratory work may be scheduled for anatomy, microanatomy, physiology, chemistry, pathology, pharmacology, and bacteriology; with others, the laboratory work may be largely the responsibility of the anatomy, microanatomy, pharmacology, and physiology staffs (nervous system), or of the chemistry staff (metabolism), or of the physiology, pharmacology, and pathology staffs (cardiovascular system), with less participation of the other departments. Problems of scheduling will arise, but these will not be insurmountable.

Can undergraduate schools go further and correlate all of the basic science and clinical teaching? The concept is an intriguing one, but we feel it will present very serious problems related to scheduling that cannot be solved with the limited laboratory facilities and faculties available.

CONCLUSION

In our opinion, integrated teaching can be successful only if the chief requirements are fulfilled. These are wholehearted enthusiasm on the part of the faculty to participate in this new educational experiment, willingness to ignore small differences of opinion in the interest of harmony and cooperation, and genuine interest in teaching and in the problems of medicine.

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TRAINING IN PSYCHOTHERAPY FOR ALL PHYSICIANS

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Every physician should be trained in psychotherapy and expect to use it in his practice. This psychotherapy will not be the same as that by a psychiatrist, but rather a psychotherapy modified to the special needs of the particular clinician and his clientele. A training program to supply the required background and techniques can be made universally available. Such a training program was evolved at the Cedars of Lebanon Hospital in Los Angeles. As similar plans are set into operation throughout the country, it would also be possible to cope with the problems of time and money that now impede the physician interested in this more comprehensive medical approach.

UNIVERSAL PSYCHOTHERAPY

There is fairly wide acceptance of the notion that the practitioner should care for the major psychological and sociocultural factors disturbing his patients, but the idea of psychotherapy practiced by all physicians tends to evoke objection from some practitioners and psychiatrists. Nevertheless, that is what grows naturally out of the needs of current medical practice.

It is generally admitted that about one-third of the patients seen by physicians (general and specialist) have primary psychogenic pathological conditions, one-third have primary physiogenic pathological conditions, and the other third have both, really two different illnesses. Inadequate handling of the large segments of the population with psychogenic illness is one of the major problems of modern medicine and is responsible for the flourishing of many healing cults. Inadequate care for psychogenic pathological conditions is responsible for many, if not most, of the failures in medical practice and fosters the development of chronic neuroses and protracted invalidism. It is extremely urgent that psychosomatic illness be checked at the earliest possible moment, and this is the responsibility of the physician who sees the patient first. The physician seeing the earliest stages of symptom formation is in an opportune position to treat these patients successfully. At the initial appearance of the illness, the causative factors are close to the surface and are readily uncovered. When psychogenic factors are of recent onset, the prognosis is relatively good and a cure not difficult to obtain. The prospect of preventing chronic states, many of which are incurable, is an insistent argument for the earliest possible treatment of psychogenic illness.

Emphasis must be placed on the fact that treatment in this first stage of psychogenic illness is not for the psychiatrist to administer, for at this point the great bulk of patients would resent being referred to a psychiatrist. Furthermore, there are not enough psychiatrists, and their services should be reserved for special problems. The early manifestation of psychogenic factors is not only a special area in which the practitioner can function in his own right, but often it is one in which he alone can achieve the best results.

Once the need for caring for the emotional and social causes of illness in medical patients is recognized, the case for universal psychotherapy becomes clear. The former Chief of Staff at the Cedars of Lebanon Hospital, Dr. M. N. Beigelman, foresaw this when he said, "The time has come when medicine must be reoriented, so that instead of there being the two major disciplines of medicine and surgery, there must now be added a third of equal status—psychiatry." This is particularly significant in therapy. Every physician should be trained in psychotherapy as well as medicinal and surgical therapy.

For the skeptical it is essential to observe that all physicians now do practice some psychotherapy, albeit in many instances it is poor or at least can be improved. But inadvertent and sporadic psychotherapy does not meet the needs of patients in an efficacious manner. They

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Read before the Section on Nervous and Mental Diseases at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

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may require a more consciously planned psychotherapeutic approach, often with special periods of time set aside for that purpose.

A most important need today is to improve the psychotherapeutic skills of physicians and to assure a more consistent utilization of such skills. Important as it is to convince physicians of the necessity of meeting psychopathological conditions in their patients, it is more essential to demonstrate procedures which are practical and effective. What is now required is a training program for physicians instructing them in the fundamentals of psychopathology, together with diagnostic and therapeutic techniques. Most certainly there should be a teaching of fundamentals to undergraduates. In addition thereto is the fact that for almost a generation to come the greater number of physicians in practice will not be future graduates but, instead, physicians now in practice. Training in medical school must be accompanied, therefore, by a program for graduate physicians, such as the one described herein. The program is being described so that interested physicians can institute similar activities in their hospitals.

TRAINING PROGRAM

In the spring of 1947 a training program was set up in collaboration with the psychiatric department at the Cedars of Lebanon Hospital (a general hospital) for the training of hospital colleagues in psychotherapy. In order to permit practical training which would cut across many of the controversial and confusing aspects of psychiatric theory, it was arranged to have volunteer practitioners examine and treat medical patients with psychogenic problems under the direction and supervision of the staff psychiatrist. Each physician had two to three patients in hourly sessions of therapy once a week. Each week one hour was spent in consultation or supervised observation with a psychiatrist.

Emphasis was placed on practical experiences rather than didactic presentation. In this connection five areas were stressed: (1) fundamentals of psychopathology related to basic origin in conflict, adhering largely to the factual or generally accepted data with avoidance of the controversial and hypothetical; (2) modification of the traditional diagnostic procedure with reorientations in history taking to aid in the eliciting of psychopathological data; (3) a new diagnostic technique—the life history; (4) modification of the traditional therapeutic procedure, with emphasis on the interpretation of psychogenic illness to the patient, and (5) a new therapeutic technique—interview psychotherapy. The acquisition of this background and skill was constantly oriented in the direction of practical expediency. Because the new diagnostic and therapeutic techniques were probably too time consuming to be utilized frequently by the physician, modifications in his usual diagnostic and therapeutic procedure were stressed for routine use. The special techniques would be reserved for special cases and in general served to enhance the physician's background.

Emphasis was placed on brief therapy. This was facilitated by the setting up of objectives for the practitioner which differed from those of the specialist. Insight into the psychogenic origin of symptoms and the uncovering of the current situational or precipitating factors we held to be within the practitioner's sphere. Charac reconstruction and the uncovering of childhood nucle traumas were deemed to be objectives of long-te therapy reserved to the specialist, the psychiatrist. It w emphasized that there was no intent to make psychiatri of the practitioners.

Up to the present 62 graduate physicians and ab 237 senior medical students have gone through the pr gram. Most recently, within the past year, chiefs of t medical outpatient department have decided to incorp rate the program into the regular medical clinics so th all their physicians might partake of this traini although certain practical difficulties have prevented full operation.

The results of the program have included benefits the patient, physician, psychiatrist, and hospital. For t patient, in addition to relief or improvement of sym toms, there has been proper orientation as to the psyc logical origin of his difficulty. These benefits of psych therapy have, at times, been supplemented by t elimination of much unnecessary, wasteful, and ev harmful referral from physician to physician and fr clinic to clinic. For the physician there has occurred increase in his security, a feeling of adequacy in t handling of these patients. Response to a questionna indicated universally that the physician had acqui techniques which permitted him to be at ease with patient. One of our physicians said that he now felt ju fied in charging patients for this type of care. The ph sicians have acquired direct experience in diagnosis a treatment and an increase in their knowledge of fundamentals. To the psychiatrists there have accru sharpened skills as a result of the teaching process, a there has been a better type of case referral from hospi colleagues to the psychiatrists for their specialized tre ment. To the hospital have come the benefits of elimin ing wastes in unnecessary laboratory tests and specia referrals. At one point, for the first time in the history the hospital, the waiting list in the outpatient departm diminished to zero.

The training program fits into the traditional patte by which physicians acquire many practical ski namely, the pattern of work in hospital clinics. As su it can be included in every general hospital. It is p time and open to all, thus having an advantage over po graduate courses, which require physicians to give their practices and which, even then, are scarcely lo enough to permit adequate treatment experience. It further, based on practical experience under supervis and offers the optimum opportunity for acquiring n skills.

The deficiencies of the program are still manife These are, in part, related to the lack of background fundamental psychiatric knowledge but are also, in pa due to the lack of development in the techniques to employed in this area. There is much need for more search on short-term diagnostic and therapeutic te niques. It is of interest that in the four years of operati not a single instance of any major mishap as a result general physicians working in this program has come my attention.

POLICIES FACILITATING UNIVERSAL ADOPTION

Although the program was gratifying to those who participated in it and will be continued at Cedars of Lebanon Hospital, it has been considered an experiment in professional training with universal applicability. Indeed, if the program should be duplicated in most other general hospitals, it would result in psychotherapeutic training for the medical profession as a whole. Experience indicates that it cannot be undertaken full-blown from the start. Even with physicians adequately trained, this type of comprehensive medicine could not be universally applied at the present because of the greater periods of time it requires initially. Until the patient has an appreciation of its value and is willing to pay for it, there will be limits to its general acceptance. Because of these factors, the training still to be acquired, and other resistances, the incorporation of this approach by the profession will be a gradual one, even in any one institution.

To facilitate more general adoption the following recommendations are being pursued at the Cedars of Lebanon Hospital: First, there is need for driving home the realization that the greater initial outlay of time, energy, and expense effects a saving in the long run. The increased physician's fees due to more prolonged examinations and therapeutic interviews in great measure effect a saving by the elimination of random laboratory exploration and specialty consultations and the earlier termination of treatment, with the prevention of chronic illness and its associated unending expense.

Second, there is need to establish a priority among patients so that the patient seen in the early stages, which is the patient most amenable to psychotherapeutic care, receives attention before the chronic or incurable patients. The chronic patients are the ones most readily recognized as needing psychotherapy and selected for it; whereas, the ideal therapeutic patient, who is a young person with fairly well integrated personality and resourcefulness who has had symptoms for only a short period, frequently goes unrecognized and is not treated. The chronic or incurable patients are more likely to discourage the physician, obstruct progress in psychotherapeutic training, and even discredit psychotherapy. Recognition and treatment of patients in the early stage is therefore stressed. Methods for the care of chronic patients with the minimum expenditure of energy should be pursued.

Third, a flexible set of therapeutic objectives, graduated from minimal care upward, should be applied as time and facilities permit. Each physician should be taught to apply the principles and formal techniques of interview psychotherapy, but it must be recognized that he needs to adjust his performance to the limitations of the patient and his circumstances. The problem is to discover procedures, less than ideal, that do not sacrifice essentials and that remain effective. It is possible to work with varying standards or techniques, adjusted not arbitrarily or accidentally but modified to meet specific needs. The program at Cedars of Lebanon Hospital proceeded on the assumption that the patient with psychogenic symptoms is better off if he has one session of psychotherapy than if he has none, and better off still if he has two, three, or more. Fortunately, there are forces within the patient tending to promote recovery from psychogenic stress, just as there are homeostatic factors related to physical or organic stress. Many times all the patient needs is a slight boost, and his own resources will accomplish the remainder of the cure. This is particularly true in the beginning stages of psychopathological conditions. Although psychiatrists of all schools of thought were utilized at Cedars of Lebanon Hospital and techniques of psychotherapy were taught that require more time than the average course of medical treatment, the conviction was reached that brief therapy of a flexible type is the optimum procedure for the nonpsychiatrist.

Fourth, a gradual expansion of the program within the hospital and its clinics should be planned in the hope that concomitantly similar changes will take place in the private practices of the physicians in the program. The general hospital outpatient department represents a good place of beginning. With the supervision of consulting psychiatrists, the program can be undertaken first in a special clinic set up for that purpose. Once a few of the physicians have been trained in such a special clinic, they may help reduce the patient load in the medical outpatient department, so that other staff members can be relieved from excessive patient loads and trained in the new techniques. As measures to segregate chronic patients are perfected and the number of chronic patients is reduced by the use of the new approach, still other physicians may be permitted to enter the program. In this way a gradual infiltration of the medical clinics and then the specialty clinics may be made possible. Inpatient wards may be serviced in a similar fashion.

Although the major theses presented in this paper are three—psychotherapy for all physicians, a training program to make this feasible, and some steps required to make possible the widespread adoption of psychotherapeutic medicine—actually the primary purpose is to report the training program. That program carries with it no commitment as to what the physician should be taught. That may vary with the plans and intentions of physicians in different places. Those not sharing the concept of psychotherapy of Cedars of Lebanon Hospital may be interested in training according to their own concepts. One of the chief merits of the proposed system of training is that it is flexible and adaptable to different needs and different orientations. It is hoped that physicians elsewhere will be stimulated to give it a trial.

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Innate Nonsusceptibility to Infection.—Different animal species vary in their resistance to bacterial parasites and toxins. Thus, for example, man is resistant to canine distemper and rinderpest, and the dog and cat do not get measles, poliomyelitis, typhoid fever, and cholera. Sometimes the differences between species are not complete or absolute, as in the above instances, but partial or relative. The mouse is relatively insusceptible to diphtheria toxin—relatively, that is, to the susceptibility of the guinea-pig. The dog and goat are rarely infected with tetanus, and man seldom develops avian tuberculosis. The frog is unaffected by tetanus toxin in the cold, but succumbs on warming. The fowl is naturally immune to anthrax, but on exposure to low temperature contracts the disease and dies.—H. J. Parish, Inherited Immunity, *British Medical Journal*, May, 1951.

INFECTION IN CHRONIC CHOLECYSTITIS

REVIEW OF TWO HUNDRED FIFTY-NINE OPERATIVE CASES WITH PREOPERATIVE AND POSTOPERATIVE DUODENAL DRAINAGE STUDIES

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and
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The diagnosis of biliary tract infection by nonoperative means remains a practical clinical problem, notwithstanding improvements in diagnostic procedures. The fact that the duodenum is normally sterile and that bacteria of the biliary tract can be obtained with a duodenal tube has been known for many years.[1] Duodenal cultures consistent with those found in the biliary tract at operation can be obtained with an encapsulated duodenal tube.[2] Duodenal cultures, however, are influenced by the presence of free hydrochloric acid in the gastric contents because the free acid apparently has an inhibiting effect on the growth of bacteria in the stomach, duodenum and bile.[3]

Cultures of the liver may be positive for pathogenic organisms in the normal person because some bacteria transmitted by the blood stream to the liver to be destroyed may survive. These are excreted into the bi
ducts. There, however, they rarely produce patholog
changes or symptoms, except in the presence of obstru
tion.[4] The reported incidence of biliary tract infectio
(as shown by cultures taken at operation) varies co
siderably.[5]

During recent years most investigators report tl
gallbladder to be sterile in about two-thirds of all typ
of cholecystitis.[6] The bacteria most commonly four
are the Escherichia coli and Salmonella typhosa, an
at times various streptococci, staphylococci and othe
types of organisms.[7] In the absence of pathogenic o
ganisms, changes of an inflammatory nature have bee
found in the biliary tract. Alvarez [6g] and Rehfuss [5c] b
lieve that infections occur intermittently, and that cultur
taken in an inactive period are sterile. These patholog
changes, however, may be the result of mechanical
chemical irritations, such as those thought to be due
an excessive concentration of bile,[8] or the presence
activated pancreatic ferments.[9] Allergic reactions m
result in similar inflammatory changes.[5c]

The progressive character of pathologic changes se
ondary to the biliary tract infection that begins in tl
gallbladder and extends to the bile ducts and liver h
been stressed by Russell, Carter, and Oppenheim [10] a
many others.[11] An excellent review of the known fac
is given by Hobson and Rice-Oxley,[5c] who stress tl
need of early recognition of the preliminary stages of tl
generalized biliary tract disease, which they term "chc
angiohepatitis." Early cholecystectomy, when done b
fore the infection extends beyond the gallbladder, w
in most cases effect a cure. Delayed operation, on tl
other hand, is more difficult, is accompanied by a high
morbidity and mortality and has considerably less chan
of a complete cure. These authors make the followi
statement:

> The only indubitable evidence of cholangiohepatitis is in t
> isolation of E. coli or other organisms, either at the time
> operation or by duodenal aspiration, before or after operati
> Duodenal intubation is an invaluable aid in diagnosis and mo
> over can provide evidence of the success or failure of surgi
> or bacteriologic therapy.

The present investigation deals with the incidence
biliary tract infection as determined by operative c
tures, and with cultures of duodenal bile obtained befo
and after cholecystectomy, as well as with the concon
tant pathologic changes of the biliary tract found
operation. The material presented is from a series of 2
patients with chronic cholecystitis operated on in tl
combined medical and surgical biliary tract clinic
University Hospital during the past 20 years. An effo
has been made to determine the role of bacterial infe

This work has been aided by a grant from the Oliver Rea Fund.

Dr. James E. Ziegler, Jr., and his associates in the Department of Microbiology assisted substantially in the preparation of this report.

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tion in the production of stones and other pathologic conditions. The preoperative diagnostic work-up in 156 cases included a duodenal drainage with cultures of duodenal bile; similar duodenal drainages were done for 113 patients after cholecystectomy.

The purpose of the duodenal drainage studies was (1) to ascertain the accuracy with which bacterial infection of the biliary tract could be determined preoperatively with methods now in use; (2) to demonstrate significant changes in the flora of the duodenal bile that might occur as the result of cholecystectomy. These drainages were done with the Twiss duodenal tube,[12] with the sterile precautions of a modified Lyon technic described elsewhere.[1g]

The accuracy of the bacteriologic findings in this series of patients may be compared with a series of 120 operative patients previously reported by Twiss, Carter and Hotz,[2c] in which the preoperative duodenal drainages were performed with a Twiss duodenal tube with the bucket covered by a keratin-coated capsule. In this series 75 patients were found to have all specimens of duodenal bile sterile preoperatively. Seventy-four of this group were sterile in all parts of the biliary tract at operation. Of 28 patients having one or two pathogenic types of organisms preoperatively, 25 showed the same types in the specimens obtained at operation.

DIAGNOSTIC INVESTIGATION

In this investigation those patients with negative cultures at operation were classified as sterile. Those having one or more positive cultures at operation were included in the infected group. A cholecystogram of practically all patients not having jaundice was obtained. For those having duodenal drainages, the free hydrochloric acid, the presence or absence of concentrated gallbladder bile, and the results of cultures of bile taken under sterile precautions were recorded. "D" specimens were duodenal bile obtained before stimulation, "M" and "O" were specimens of bile obtained after the installation of magnesium sulfate and olive oil. The results presented are those of the departments of roentgenology, pathology and bacteriology.

STATISTICAL ANALYSIS

Of the 259 patients, there were 203 women and 56 men. All operative cultures were sterile in 186, or 72%, of the patients; pathogenic organisms were found in 28%. The average age of the infected group was 47 years, that of the sterile group 2.5 years less.

The average duration of symptoms was 42 months in the infected group and 56 months in the sterile group. The presence of infection did not seem to alter the character or severity of symptoms, since each group had a similar incidence of pain, nausea and vomiting, loss of weight, and chills and fever. Jaundice, however, occurred in 24% of the infected group and in 6% of the sterile group. One apparent reason for this was the more advanced pathology in the infected group. Cholelithiasis was found in 83% of the patients in both groups.

The incidence of tenderness and enlargement of the liver was the same in both the sterile and infected groups, while anemia and loss of weight were more common in the infected group. Fever was an infrequent complaint. Symptoms apparently resulted from factors such as stones and obstruction rather than infection.

A review of the cholecystograms of 196 patients showed similar findings in the sterile and infected groups. Normal visualization was reported in 24% of each group, with delayed emptying in 10% of each. Impaired or absent visualization was reported in 76% of each group. No visualization, however, was reported in 30% of the infected patients and in only 17% of the sterile patients. These findings suggest a higher incidence of cystic duct obstruction in the infected group. In a detailed review of the cholecystograms of 156 patients, there were 18, or 11%, yielding normal visualization without evidence of stones. Stones were visualized in 124. There was normal visualization of the gallbladder in 50 and faint or no visualization in 74.

OPERATIVE FINDINGS

The relative proportion of sterile and positive bacteriologic findings at operation are shown in Table 1. All parts of the biliary tract were sterile in 186 of the 259 patients; the total number of sterile cultures of each specimen is shown; some part of the biliary tract was found to harbor pathogenic organisms in 73, or 28%. (The proportion of pathogenic cultures of the gallbladder bile was 22%, the gallbladder wall 25%, gallstones 17%.) Gallstones were present in 83% of both groups. The statistics do not suggest that stones could be considered either a primary cause or effect of infection.

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EFFECT OF INFECTION

An analysis of the operative and pathologic diagnoses of the 259 patients showed that subacute cholecystitis was reported only in the sterile group, with one exception. Pericholecystitis was found in both groups (Table 2).

TABLE 1.—*Sterile and Infected Bacteriologic Findings at Operation Among 259 Patients*

	Patients with Sterile Cultures	Patients with Infected Cultures	Patients Infected, %
Conditions yielding cultures	186	73	28
Gallbladder bile	174	64	22
Gallbladder wall	171	57	25
Gallstones	125	25	17
Common duct bile	30	18	37
Cystic duct node	31	13	30

Complications involving the liver and spleen occurred with about the same frequency in both groups. The only organ that showed an increased morbidity in the infected group was the pancreas. Ten cases of acute and chronic pancreatitis were found in the infected group, with only five cases of chronic pancreatitis in the larger sterile group. Duodenal ulcer and periduodenitis were found only in the sterile group.

PATHOLOGIC FINDINGS

A brief summary of significant findings reported by the pathologist on gross and microscopic examinations of the removed gallbladders is shown in Table 3. The incidence of practically all findings is similar in both groups. Cholesterosis of the gallbladder occurred more frequently in the sterile group; necrosis, more frequently in the infected group. The low incidence of polymorphonuclear infiltration in both groups is worthy of note.

FINDINGS IN PATIENTS STERILE AT OPERATION

Preoperative Duodenal Drainage Findings.—The results of the preoperative duodenal drainages of 100 patients sterile in all parts of the biliary tract at operation are shown in Table 4. The findings are recorded on the basis of the presence or absence of free hydrochloric acid in the gastric contents. In the presence of free hydrochloric acid, 73% of the patients had all sterile cultures; with no acid, only 46% were sterile. When drainages with one or two sterile specimens of duodenal bile were added to those having all sterile specimens, 85% of those with acid showed sterile cultures, while only 61% of those without acid were sterile.

TABLE 2.—*Associated Conditions Indicated by Operative and Pathologic Diagnoses*

	Sterile	Infected
Associated Conditions	186	73
Cholecystitis, chronic	171 (92%)	70 (96%)
Cholecystitis, subacute	8	1
Pericholecystitis	11 (10%)	2 (4%)
Pancreatitis, chronic	5	6
Pancreatitis, acute	0 (2%)	4 (13%)
Hepatitis	10	3
Cirrhosis of the liver	3 (9%)	2 (7%)
Splenomegaly	5	0
Appendicitis, chronic	85 (46%)	36 (50%)
Appendicitis, acute	1	1
Duodenal ulcer	5	0
Periduodenitis	1	0

The types of organisms found where part of the cultures were sterile are shown in Table 5. Mixed growths or nonpathogenic types of organisms predominated. Significantly enough all positive cultures of bile occurred in the "D" or "M" specimens; the final or "O" specimens were all sterile. Contaminations seemed less prevalent in the final specimens of duodenal bile. The organisms found when all cultures of duodenal bile were positive are also shown in Table 5. The proportion of these apparently contaminated drainages was 16% in the presence of free hydrochloric acid and 36% in its absence. In the achlorhydria group, mixed growths of organisms again predominated. These findings clearly indicate the relation of the absence of free hydrochloric acid in the stomach and pathogenic organisms in the duodenum. A mixed growth of organisms in the duodenal bile suggests gastric or duodenal contamination, especially if the positive cultures occur only in the "D" or "M" specimens.

Postoperative Findings in Patients with Sterile Preoperative Cultures.—Sterile postoperative duodenal drainages were done over a period of four years in 50 patients having all preoperative and operative specimens sterile. Of the 30 having no free acid postoperatively, 27 had drainage during the first year. Twenty-two of the 27 drainages showed sterile specimens, and five had only positive cultures. The types of bacteria found then and during the subsequent years were mixed cultures, E. coli and nonhemolytic streptococci. Of the 20 patients having free acid, only one had a positive postoperative bile culture of Staphylococcus aureus. Apparently a sterile biliary tract will remain sterile in the presence of free hydrochloric acid. With no free acid, however, positive cultures are far more prevalent. These findings may be attributed to an increased incidence of contamination from the stomach or intestines, an intermittent discharge of bacteria from the biliary tract, or a cholangitis which developed after the cholecystectomy.

TABLE 3.—*Significant Findings in Examinations of Removed Gallbladders*

	Sterile	Infected
	186	73
Gross examination		
Hemorrhage	9	2
Cholesterosis	13 (7%)	1 (1%)
Phrygian cap	1	0
Microscopic examination		
Fibrosis	80 (43%)	28 (38%)
Infiltration		
Lymphocytes	59 (32%)	23 (31%)
Polymorphonuclear cells	7 (4%)	4 (5%)
Mononuclear cells	13	4
Eosinophils	5	2
Collagen degeneration	4	3
Necrosis	2 (1%)	3 (4%)
Giant cells	1	0
Calcification	1	0

Postoperative Findings in Patients with Positive Preoperative Cultures.—A postoperative study of duodenal drainage bile was made of 23 patients sterile at operation, in whom pathogenic organisms were found in the duodenal bile preoperatively, to determine whether the same types of organisms were present after cholecystectomy.

Of six patients with free acid, three with preoperative cultures of E. coli showed E. coli in each case after one, three and 11 years. Of the remaining three patients, one had preoperatively a nonhemolytic Streptococcus and postoperatively a mixed growth of organisms during the first and second years. Of the remaining two, one had before operation a K. pneumoniae (Friedländer's bacillus) and one a Staph. albus; each was sterile postoperatively over a period of three years. These findings suggest a transient intermittent discharge of bacteria in the duodenal bile, as opposed to the chronic infection with positive cultures at operation.

In the 17 patients having no free acid, 10 had preoperatively a mixed growth of bacteria. Of these, nine had duodenal drainages during the first postoperative year; six had persistent mixed growths, three had a persistent single type of organism. During the second postoperative year, four of this group of 10 had duodenal drainages; there were two mixed growths, and two had a single type of organism. During the third and fourth years, three patients had drainages and each showed a mixed growth of organisms. Of four patients having E. coli preoperatively, all showed postoperatively E. coli or coli with other types of organisms over a period of three years. Sterile cultures were obtained postoperatively in only two of the 17 patients with no free hydrochloric acid. In each of these the preoperative organism was K. pneumoniae (Friedländer's bacillus). Here again, the consistent preoperative and postoperative findings indicated an intermittent discharge of the same types of organisms into the duodenum.

TABLE 4.—*Sterile Duodenal Drainage Culture Findings in 100 Preoperative Patients*

Number of Drainages		All Sterile Specimens	One or Two Sterile Specimens
In patients with free HCl.........	48	35 (73%)	6
In patients without free HCl.....	52	24 (46%)	8
Total	100	59	14

FINDINGS IN PATIENTS WITH POSITIVE CULTURES AT OPERATION

Operative Findings.—Table 6 summarizes the bacteriologic culture reports of the specimens obtained at operation in the 83 patients of the infected group, in each of whom there was at least one positive culture of a pathogenic organism. A number of cultures from the biliary tract were sterile. The most prevalent organism found was E. coli. Other organisms found in significant numbers included nonhemolytic Streptococcus, S. typhosa, and alpha (green) hemolytic Streptococcus, and Clostridium perfringens (Welch's bacillus). It is of interest to note that in this infected group, 21 of the 52 stones cultured were sterile. Cultures of the common duct bile were positive in 24 of the 25 specimens examined, while the cystic duct node cultures were positive in 17 of 18 specimens. It would seem that infections of the gallbladder involve the common duct and cystic duct node more frequently than the contained stones.

Preoperative Culture.—A study was made of the preoperative duodenal drainages in 49 patients having positive cultures of the biliary tract at operation. Of the 34 patients in this group having no free acid, 28 had at operation a single type of organism, six had more than one type (Table 7). In the preoperative duodenal drainages 14 of the 28 had only the same type of organism, while five had the same with an additional type. Preoperatively, seven patients had types of organisms different from those found at operation, while two were sterile. Of the six patients having more than one type of organism at operation, all had at least one of these types in the preoperative duodenal drainage bile.

TABLE 5.—*Organisms Found in Preoperative Duodenal Drainages*

Organism	Number in Patients With Free HCl	Number in Patients Without Free HCl
Sterile "O" Bile with Positive "D" or "M" Specimens		
Mixed growth	3	6
Micrococcus catarrhalis	1	0
Nonhemolytic Streptococcus	1	0
Klebsiella pneumoniae	1	1
Staphylococcus albus	0	1
Total	6 (12%)	8 (15%)
No Sterile Cultures		
Mixed growth	3	14
Nonhemolytic Streptococcus	2	0
Streptococcus viridans	1	0
Staphylococcus albus	1	0
Gram-negative rods	1	0
Escherichia coli	0	4
Gram-positive cocci	0	1
Total	8 (16%)	19 (36%)

The bacteriologic findings in the 15 patients having free acid are also shown in Table 7. Of the 15, nine showed the same type of organism in the duodenal drainage bile as that found at operation. The duodenal bile was sterile in four patients and in two a type of organism different from that in the biliary tract at the time of operation was shown. In summary, 43, or 87%, of the patients showed pathogenic types of organisms in the duodenal drainage bile. All patients having sterile preoperative cultures of duodenal bile had sterile cultures of gallbladder bile at operation.

TABLE 6.—*Types of Organisms in Operative Specimens of 73 Patients with Pathogenic Organisms in the Biliary Tract*

	Total	Sterile	Escherichia coli	*Salmonella typhosa*	Nonhemolytic Streptococcus	2 Types of Organisms	Alpha Hemolytic *Streptococcus*	Clostridium perfringens	Proteus vulgaris	Staphylococcus albus	Gram-negative rods	Alcaligenes faecalis	Staphylococcus aureus
Gallbladder													
Bile.......	83	16	26	6	9	5	4	3	1	1	1	0	11
Wall......	69	18	20	7	3	5	6	3	3	1	1	1	1
Stones....	52	21	13	4	3	3	3	2	1	1	1	0	0
Common duct bile........	25	1	11	2	3	4	2	1	1	0	..	.	..
Cystic duct node......	18	1	6	1	..	3	2	..	2	2	..	1	..

Postoperative Cultures.—In 40 patients having positive cultures of the biliary tract at operation, the effect of cholecystect [illegible] on the bacteriology of the duodenal bile was [illegible] inages over a period

Of the various types of infection, only in S. typhosa was there a tendency for the duodenal bile to become sterile, regardless of the presence or absence of free acid. Of 11 typhoid carriers (seven with free acid and four without acid), nine had sterile cultures of duodenal bile within a year; in one the bile became sterile later.

In the remaining 29 patients, 18 without free acid showed persistently positive cultures of duodenal bile in most instances. In this group, of the six having E. coli at operation, the duodenal bile became sterile in three, and in three the E. coli was retained, two of these having an additional type of organism.

Of the 11 patients with free acid, five who had single types of E. coli or nonhemolytic streptococci at operation had sterile duodenal bile. The remaining six had two types of organisms at operation. All these patients continued to have positive cultures of the same or similar types in the duodenal bile.

TABLE 7.—*A Comparison of the Operative and Preoperative Cultures in 49 Patients Divided Into Groups Having Free Acid and No Free Acid*

Operative Culture: No. of Patients: Free HCl* 0	Operative Culture: No. of Patients: Free HCl* +	Operative Culture: Type of Organism	Preoperative Duodenal Drainage Cultures, No. of Patients: Same 0	Same +	Same plus Different Type 0	Same plus Different Type +	Different 0	Different +	Sterile 0	Sterile +
12	6	Escherichia coli	8	3	3	1	1	1	0	1
6	1	Salmonella typhosa ..	6	1	..	..	..	..	..	..
5	2	Nonhemolytic Streptococcus	..	..	2	..	2	..	1	2
1	..	Streptococcus viridans	..	..	..	..	..	..	1	..
1	..	Staphylococcus aureus.	..	..	..	..	1	..	..	..
1	1	Proteus vulgaris.......	..	..	..	..	1	1	..	..
1	..	Staphylococcus albus..	..	..	..	..	1	..	..	..
1	..	Gram-positive rods....	..	..	..	..	1	..	..	..
	1	Gram-positive cocci and Candida albicans....	..	1	..	..	..	..	..	..
	1	Alcaligenes faecalis....	..	..	..	..	..	..	..	1
	12		14	5	5	1	7	2	2	4
		Patients Having Single Type of Organism at Operation								
		Operative				Preoperative				
2	1	Escherichia coli with nonhemolytic Streptococcus	2	1	..	(Escherichia coli only)				
1	..	Aerobacter aerogenes..	..	..	1	Aerobacter aerogenes				
..	..	Alcaligenes faecalis....	..	..	..	Nonhemolytic Streptococcus				
2	2	Nonhemolytic Streptococcus	2	1	..	1 (One nonhemolytic Streptococcus only)				
..	..	Alpha hemolytic Streptococcus	..	..	..	..	..	..	..	..
1	..	Mixed growth..........	1	..	..	..	..	..	..	..
34	15		19	7	6	2	7	2	2	4
		Patients Having More Than One Type of Organism at Operation								

* 0 equals absence of free HCl, + equals presence of free HCl.

COMMENT

The role of infection in chronic cholecystitis is of fundamental importance in that a chronic infection apparently becomes permanent once it has extended beyond the gallbladder and becomes established in the walls of the bile ducts. While the majority of patients coming to operation do not show evidence of active infection, the presence of such an infection frequently constitutes a serious problem even after operation.

The recognition of such a condition before involvement of the bile ducts and liver is obviously to the best interest of the patient, surgeon and internist. Active infection of the biliary tract can be determined reliably by cultures of duodenal bile taken under sterile precautions provided there is good drainage technic and accurate laboratory work.

At operation, the majority of organisms found are in the colon-typhoid and streptococci groups. In most cases the presence of these bacteria in the duodenal bile (as shown by comparative studies of the preoperative and operative cultures in this series) constitutes dependable evidence of biliary tract infection.

However, the presence of organisms in the duodenal bile, other than those of the above-stated groups, cannot always be considered of diagnostic value, particularly if several types are present, or if there is no free hydrochloric acid in the gastric contents. The accuracy of the cultures of duodenal bile should be questioned if they are not consistent with the history, physical findings and cholecystographic findings.

The procedure of duodenal drainage has lent itself particularly well to the investigation of patients with a residual typhoid infection of the gallbladder, in whom the diagnosis of the typhoid carrier state by duodenal bile cultures and its elimination by cholecystectomy have been in most cases successful.[13] The elimination of the more prevalent colon carrier state is decidedly less satisfactory. The cause of the unsatisfactory results in many of these patients is that the nature of the infection has not been recognized until after it has spread beyond the gallbladder and become "seeded" in the bile ducts, after which cholecystectomy is unsuccessful in clearing up the condition. The earlier recognition of active biliary tract infection by means of duodenal drainage cultures should lower the incidence of delayed cholecystectomy, which in these cases results in a persistent chronic infection of the bile ducts, with increased operative mortality and increased morbidity.

SUMMARY AND CONCLUSIONS

1. A study has been made of 259 patients with chronic cholecystitis coming to operation. Preoperative and postoperative cultures of the duodenal bile were obtained, as well as cultures from all parts of the biliary tract at operation. Operative cultures were positive in 73, or 28%, of the patients, and were sterile in all parts of the biliary tract in 186, or 72% of the patients.

2. The sterile and infected groups had a similar incidence of symptoms and abnormal physical findings, as well as the same percentages of abnormal cholecystograms.

3. Gross and microscopic pathologic examinations showed no significant differences in the sterile and infected groups.

4. In the group of 186 patients sterile in all parts of the biliary tract at operation, the results of preoperative duodenal drainages in 100 patients gave one or more sterile cultures in 85% of those with free hydrochloric acid and in 61% of those having no free acid. Fifty patients with sterile preoperative cultures, practically all having free acid, remained sterile postoperatively. Of 32 patients having no free hydrochloric acid, 10 showed only postoperative positive cultures of duodenal bile.

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5. In the group of 73 patients with pathogenic organisms in the biliary tract at operation, the predominating organisms were Escherichia coli, Salmonella typhosa, nonhemolytic Streptococcus, alpha hemolytic Streptococcus (green), Klebsiella pneumoniae (Friedländer's bacillus), and Proteus vulgaris. Stones were positive in 31 of 52 cases, the common duct bile and cystic node cultures were positive in all but one case each. Eighty-seven percent of 73 preoperative duodenal drainages showed pathogenic organisms. The six patients having sterile preoperative cultures had sterile gallbladder bile at operation. Postoperative drainages showed sterile cultures of duodenal bile in 10 out of 11 typhoid carriers and in all patients having free acid with pure colon or Streptococcus infections. In the majority of the patients having no free acid and in those having acid with mixed cultures at operation, the duodenal bile remained positive.

6. In both the sterile and the infected groups, there were the same incidence and type of pathologic changes and stones, suggesting that infection was superimposed upon previously existing pathologic conditions.

7. The presence of active infection, however, makes the condition of the patient far more serious. Infectious cholecystitis can be cured only if treated in the early stages by cholecystectomy.

8. The early recognition of biliary tract infection is for the most part dependent upon the demonstration of pathogenic organisms in the duodenal bile. With suitable sterile precautions this can be done accurately in the majority of patients.

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VISUAL SYMPTOMS AFTER DIGITOXIN THERAPY

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The demonstration by Travell and Gold[1] that digitoxin is almost completely absorbed from the gastrointestinal tract in man has led to an ever-increasing popularity in the use of this digitalis glycoside. Many physicians are now employing digitoxin ("digitaline Nativelle," purodigin®, and crystodigin) in preference to digitalis leaf in congestive failure and arrhythmias requiring digitalis therapy. Although Gold and his co-workers[2] have emphasized that the full oral digitalizing dose of 1.2 mg. and the maintenance dose of 0.2 mg. can be given with safety, several reports of digitoxin toxicity have recently appeared in the literature.[3]

Ocular symptoms associated with digitalis poisoning have long been known to the medical profession. Recently, eye symptoms have also been described resulting from the ingestion of digitoxin, but these were associated with more serious cardiac abnormalities. The following four cases illustrate visual disorders arising shortly after digitoxin therapy with no other evidence of toxicity.

REPORT OF CASES

CASE 1.—S. O., a 69-yr.-old white man, complained of cough, dyspnea on exertion, and slight ankle edema of five days' duration when seen on Jan. 5, 1949. The past history disclosed that he had sustained two attacks of coronary occlusion, in 1936 and 1942. He recovered completely and was able to perform his work, dress cutting, until this present episode.

Physical examination at this time revealed dyspnea and orthopnea but no cyanosis. The weight was 187 lb. (84.8 kg.). The heart was markedly enlarged to the left on percussion and the apical impulse was palpable in the sixth interspace at the anterior axillary line. A systolic murmur was heard at the apex and base, and the second aortic sound was accentuated. The rhythm was regular and the blood pressure was 120/80. There were many moist rales at both bases of the lungs. The liver was enlarged three fingerbreadths below the costal margin and there was 1 + pretibial edema. The electrocardiogram was interpreted as showing an old anterior wall infarct, left axis deviation and a transverse heart. There was no history of digitalis therapy; therefore, 0.4 mg. of "digitaline Nativelle" was given at once, followed by 0.4 mg. every six hours until a total of 1.2 mg. was reached. Thereafter, a daily maintenance dose of 0.2 mg. was employed. In addition, bed rest and a salt-free diet were prescribed. Two weeks later the patient complained of slight blurring of vision. He stated that he saw bright flickering lights, and that objects were covered with snow when he was outdoors in the daylight. He was referred to an ophthalmologist, who, after a complete examination failed to discover any abnormal findings. It was suggested that the digitoxin was responsible for the ocular disturbances. An electrocardiogram at this time indicated depression of the ST segment and inverted T waves in leads 2 and 3. No rhythm or conduction abnormalities were noted. Cessation of digitoxin for several days succeeded in clearing these symptoms. "Digitaline Nativelle" was then readministered in a 0.1 mg. daily dose with no ill effects.

CASE 2.—M. B., a 70-yr.-old white man with hypertensive and arteriosclerotic heart disease and emphysema, had been on digitalis leaf therapy for several years with no untoward effects. On Feb. 7, 1949, he complained of marked dyspnea, orthopnea, cough and swelling of the ankles. He had not taken digitalis for six months.

On physical examination the heart was enlarged to the left on percussion. There was a systolic murmur at the base, and the second aortic sound was greater than the second pulmonic sound. The rhythm was regular and the blood pressure was 170/110. The lungs were hyper-resonant to percussion and numerous rhonchi, wheezing and sonorous rales were heard throughout both lung fields. The liver was felt four fingerbreadths below the costal margin, and there was 2 + pretibial edema. The weight was 202 lb. (91.6 kg.). The electrocardiogram demonstrated right axis deviation with a pattern suggestive of right ventricular hypertrophy. The patient was given 1 cc. of meralluride injection (mercuhydrin®) subcutaneously, and 1.2 mg. of purodigen® was prescribed in three divided doses of 0.4 mg. every six hours, followed by a maintenance dose of 0.2 mg.

From Manhattan General Hospital.

[1] Travell, J., and Gold, H.: Studies on the Absorption of Some Digitalis Preparations from the Gastro-Intestinal Tract in the Cat and Man, J. Pharmacol. & Exper. Therap. **72**: 41, 1941.

[2] Gold, H.; Kwit, N. T.; Cattell, M., and Travell, J.: Studies on Purified Digitalis Glycoside: Single Dose Method of Digitalization, J. A. M. A. **119**: 928 (July 18) 1942. Gold, H.; Cattell, M.; Modell, W.; Kwit, N. T.; Kramer, M. L., and Zahm, M.: Clinical Studies on Digitoxin (digitaline Nativelle) with Further Observations on Its Use in the Single Average Full Dose Method of Digitalization, J. Pharmacol. & Exper. Therap. **82**: 187, 1944. Gold, H.: Conferences on Therapy: Use of Digitalis, New York J. Med. **42**: 2043, 1942.

[3] (*a*) Master, A. M.: Digitoxin Intoxication, J. A. M. A. **137**: 531 (June 5) 1948. (*b*) Flaxman, N.: Digitoxin Poisoning: Report of 30 Cases, Am. J. M. Sc. **216**: 179, 1948. (*c*) Stone, J.: Auricular Tachycardia and Auriculo-Ventricular Dissociation Following 1.2 Mg. of Digitoxin in One Dose, J. Mt. Sinai Hosp. **14**: 924, 1948. (*d*) Braun, L., and Wosika, P. H.: Bidirectional Paroxysmal Tachycardia: Toxicity of Different Cardiac Glycosides, Am. Heart J. **29**: 261, 1945. (*e*) Burwell, W. B., and Hendrix, J. P.: Digitalis Poisoning, Am. J. Med. **8**: 640, 1950.

daily. Ten days later, when the patient was seen again, marked improvement of the congestive failure was noted. On careful questioning, however, he complained that he had white spots before his eyes and blurring of vision, and that objects were covered with snow when he was outdoors in the daylight. In addition, there were loss of appetite and nausea but no vomiting. Digitoxin intoxication was suspected immediately and the drug was stopped. An electrocardiogram at this time revealed depression of the ST segment and inversion of the T waves in leads 1, 2, and 3. Several days later, 0.1 mg. of purodigen® was readministered without return of the above symptoms. On several occasions when the dose was increased spots before the eyes reappeared.

Case 3.—Mrs. B. S., a 72-yr.-old white woman, was admitted to Manhattan General Hospital on Nov. 15, 1949, with a diagnosis of hypertensive and arteriosclerotic heart disease in marked congestive failure. She had omitted taking digitalis for several months. Her weight was 178 lb. (80.7 kg.). On admission, 1.2 mg. of "digitaline Nativelle" was administered at once, followed by a maintenance dose of 0.2 mg. daily. In addition, oxygen, a salt-free diet, and meralluride injection every other day were given. Six days later the patient complained of blurred vision and yellow spots before her eyes. An electrocardiogram taken at this time did not reveal any changes from those noted on admission and was interpreted as indicative of left ventricular strain. Immediately, digitoxin was stopped and four days later these visual symptoms disappeared. A dose of 0.1 mg. daily was reinstituted and well tolerated.

Case 4.—Mrs. M. F., a 78-yr.-old white woman, was admitted to the Manhattan General Hospital on May 15, 1950, in marked congestive failure.

Physical examination revealed marked cyanosis, dyspnea and orthopnea. There was distention of the vessels of the neck. Cardiac dullness was markedly enlarged to the left on percussion. The rate was rapid and the rhythm was regular. There was a rough musical systolic murmur over the entire precordium, and the second pulmonic sound was accentuated. The blood pressure was 210/130. There were many rhonchi, wheezes, and numerous sibilant and moist rales throughout both lung fields. liver was palpable at the level of the umbilicus and was ely tender. The extremities revealed 3 + edema. The ight was 210 lb. (95.2 kg.). An electrocardiogram, taken on May 16, 1950, revealed left bundle-branch block. Since there was no history of any recent digitalis therapy, 1.2 mg. of "digitaline Nativelle" was given at once, followed by 0.2 mg. daily. In addition, aminophylline and the Karell diet were prescribed. Four days later, on careful questioning, the patient complained of loss of appetite, nausea, blurred vision, yellow vision, and scotoma. An electrocardiogram at this time did not indicate any cardiac abnormalities other than those noted on admission. Cessation of the digitoxin for five days resulted in clearing of the above symptoms. A subsequent dose of 0.1 mg. daily was then given with no untoward effects.

COMMENT

Congestive heart failure, regardless of its etiology, is the primary indication for digitalis therapy. Inasmuch as in all the cases presented the patients were in failure, there can be no question as to the need for the use of a digitalis compound. The dosage of 1.2 mg., either as an initial digitalizing dose or in divided doses given every six hours, is in accord with schedule suggested by Gold and others.[2] This cannot be considered an excessive amount since all the patients weighed more than 70 kg. The daily maintenance dose of 0.2 mg. is somewhat controversial. Although Gold and his associates recommended a daily maintenance dose of 0.2 mg., they felt that this was the average dose and it did not apply to all cases. Batterman and DeGraff[4] stated that a daily maintenance dose of 0.2 mg. carried with it a higher incidence of toxicity than a 0.1 mg. daily quota; hence, they recommended the latter. It is possible that the higher maintenance dose employed in this group of patients may have been responsible for the toxic symptoms, since digitoxin is known to have a cumulative effect.

Ophthalmic complaints resulting from digitalis intoxication were noted as early as 1785, when Withering, in his classic paper on the foxglove, stated that when given in large doses it might result in "confused vision—objects appearing green or yellow." In 1925, Sprague, White and Kellogg,[5] in an exhaustive review of the subject, found few references in the English literature, but many reports in German and French. They described seven of their own cases and concluded that the character of the visual disturbance was related to the individual susceptibility of the patient and the dosage of the drug. Since then physicians have become alerted to this phenomenon. Not infrequently ophthalmologists are the first to see patients with visual complaints while under treatment with digitalis. Thus Carroll,[6] Langdon and Mulberger,[7] and Gillette[8] reported several patients with eye symptoms resulting from the ingestion of digitalis. In their cases the visual acuity, visual fields and fundi were completely normal. However, Wagener, Smith and Nickeson[9] described a case of blurred vision and retrobulbar neuritis with bilateral central scotomatous defects in the field of vision after digitalis therapy.

A variety of ocular abnormalities have been described associated with digitalis poisoning.[10] Blurring of vision, white vision, and disturbances in color vision, so that objects appear yellow, green, blue and red, are the most common. The effect is often increased by going out into the sunlight, although some have stated that artificial light also produces the colored vision. Cases have been recorded in which the surroundings were said to have appeared covered with snow or hoary frost. Dimness of vision with inability to distinguish objects or people, inability to focus the eyes and to read even the largest print have occasionally been mentioned. Many forms of light sensation and scotoma have also been described. These have ranged from flickering before the eyes to flashes of light, rapidly moving sparks and spots of various colors surrounded by coronas and banded figures. Rarely, diplopia and temporary as well as permanent amblyopia have been reported. Among the objective findings noted with the above symptoms were mild conjunctivitis, pupillary variations, exophthalmus, retro bulbar neuritis and possible nystagmus. Although n satisfactory explanation for these manifestations is available as yet, most investigators believe that they are du to a toxic action of digitalis on the central nervou system.

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4. Batterman, R. C., and DeGraff, A. C.: A Comparative Study on the Use of the Purified Digitalis Glycosides: Digoxin, Digitoxin and Lanatoside C for the Management of Ambulatory Patients with Congestive Failure, Am. Heart J. **34**: 663, 1947.

5. Sprague, H. B.; White, P. D., and Kellogg, J. F.: Disturbances of Vision Due to Digitalis, J. A. M. A. **85**: 716 (Sept. 5) 1925.

6. Carroll, F. D.: Visual Symptoms Caused by Digitalis, Am. J. Ophth. **28**: 373, 1945.

7. Langdon, H. M., and Mulberger, R. D.: Visual Disturbances After Ingestion of Digitalis, Am. J. Ophth. **28**: 639, 1945.

8. Gillette, D. F.: Visual Disturbances Due to Digitalis, Tr. Am. Ophth. Soc. **44**: 156, 1946.

9. Wagener, H. P.; Smith, H. L., and Nickeson, R. W.: Retrobulbar Neuritis and Complete Heart Block Caused by Digitalis Poisoning, Arch. Ophth. **36**: 478 (Oct.) 1946.

10. Sprague, White and Kellogg.[5] Willius, F. A.: Digitalis Intoxication, Mod. Concepts of Cardiovas. Dis. **14**: 12 (Dec.) 1945.

Blurred vision, white and yellow vision, scotoma, the appearance of bright flickering lights and the appearance of snow covering objects outdoors were the visual disturbances observed in these patients following the ingestion of "digitaline Nativelle" and purodigen®. They were no different from those described as a result of digitalis toxicity. This is not surprising, since there is sufficient experimental evidence to indicate that the only fraction of digitalis that is absorbed is the digitoxin or digitoxin-like material. Batterman and DeGraff,[4] and Gold,[11] as well as others, have shown that the toxic manifestations of the purified glycosides are generally the same as those of digitalis leaf. Master [3a] observed that the symptoms in his cases of digitoxin poisoning were no different from those described as a result of poisoning with other types of digitalis. The eye symptoms in this group of patients developed early in the course of digitoxin therapy, and cleared several days after the drug was withdrawn. Subsequently, the readministration of smaller doses produced no ill effects on the eyes, thus precluding a hypersensitivity factor.

The slight nausea and loss of appetite in Cases 2 and 4 may have been due either to the congestive failure per se or possibly to digitoxin overdosage. The depression of the ST segments and inverted T waves noted in the electrocardiograms of Cases 1 and 2 at about the same time that the visual disturbances appeared cannot, by themselves, be considered as evidence of digitoxin toxicity. They are an indication of the physiologic effect of digitoxin on the cardiac musculature. In none of the patients were rhythm or conduction abnormalities detected either clinically or electrocardiographically concurrent with the eye symptoms. This is somewhat different from the observation of others. Most of the recent reports relative to digitoxin intoxication have emphasized the serious disturbance of the cardiac mechanism. Visual disturbances have been mentioned, but always in association with cardiac disorders and other systemic involvement.

It is thus apparent from the cases presented here that ocular aberrations can occur soon after the ingestion of digitoxin and, when present, indicate early toxicity. It is probable that the prompt recognition of these visual disturbances may obviate more serious cardiac sequelae. Therefore, it is important to question patients early in the course of digitoxin therapy as to whether they have had any visual disturbances.

SUMMARY

Four patients in congestive failure were treated with digitoxin ("digitaline Nativelle" and purodigen®) orally.

A full digitalizing dose of 1.2 mg. and a maintenance dose of 0.2 mg. was employed.

Blurring of vision, white and yellow vision, scotoma, bright flickering lights and objects covered with snow, outdoors only, were the visual symptoms of toxicity noted in the patients.

The visual complaints developed early in the course of digitoxin therapy, from the fourth to the 12th day.

Cessation of administration of the drug for several days cleared the ocular disturbances, and the reintroduction of a smaller maintenance dose produced no ill effects on the vision.

No disturbances of the cardiac mechanism were noted in this group of patients with digitoxin toxicity.

It is suggested that patients on digitoxin therapy should be observed for visual symptoms.

60 Gramercy Park.

CLINICAL NOTES

INCOMPATIBILITY OF LUMBAR BLOCK AND ANTICOAGULANT THERAPY

Frank Cole, M.D.
and
William P. Kleitsch, M.D., Lincoln, Neb.

Temporary paralysis of the lumbar sympathetic ganglions by means of a paravertebral injection of procaine hydrochloride is enjoying a well-earned measure of popularity both as a therapeutic test and as a means of treatment. Paravertebral blocks are commonly used to determine the degree of vasospasm in the legs and, thus, to discover how much relief can be expected from lumbar sympathectomy. Paravertebral block is almost a specific treatment for femoral thrombophlebitis (milk-leg).

It is important to note, however, that the indications for paravertebral sympathetic block often coincide with the indications for anticoagulant therapy. This is an important item to consider because, while the indications for use of paravertebral procaine injections may coincide with the indications for anticoagulant therapy, the simultaneous use of these procedures is fraught with great danger. In other words, paravertebral blocks should never be done in patients who are receiving anticoagulant therapy. This conflict in therapeutic agents has been noted by others, who have suggested that deep injections of any kind are best avoided in patients whose clotting mechanism is impaired.[1] The most dangerous deep injections are paravertebral and intraspinal, since both pass through vascular tissues and in either case subsequent hemorrhage may be a serious complication.

Perforation of a lumbar vein is an unavoidable and not infrequent occurrence in paravertebral injections. When the clotting mechanism is intact, such a needle puncture will produce little harm, since it will soon be sealed with a clot. When clot formation is impaired, continuous oozing may occur. The amount of blood extravasated into the retroperitoneal tissues may indeed

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[11] Gold, H.; Kwit, N. T., and Cattell, M.: Studies on Purified Digitalis Glycosides: Potency and Dosage of "Digitaline Nativelle" by Oral Administration in Man, J. Pharmacol. & Exper. Therap. **69**: 177, 1940; Gold, H.: Pharmacologic Basis of Cardiac Therapy (Alpha Kappa Lecture, abridged), J. A. M. A. **132**: 547 (Nov. 9) 1946.

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Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are a result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] Lilly, G. D., and Lee, R. M.: Complications of Anticoagulant Therapy, Surgery **26**: 957-969 (Dec.) 1949. O'Connor, W.; Preston, F. W., and Theis, F.: Retroperitoneal Hemorrhage Following Lumbar Sympathetic Block During Treatment with Dicumarol: Report of Fatality, Ann. Surg. **131**: 575-580 (April) 1950.

assume massive proportions without being suspected. A lower-abdominal mass, intestinal distention, ileus, fever, and falling erythrocyte count all may indicate a retroperitoneal hematoma. When this complication occurs, the clotting mechanism must be restored by administering vitamin K to combat bishydroxycoumarin (dicumarol®) poisoning and protamine to counteract heparin. Supportive blood transfusions are also indicated. Finally, operative drainage of the hematoma is desirable.

REPORT OF A CASE

R. B., a 54-yr.-old white man, sustained a fracture of the right lower leg in an automobile accident on April 4, 1950. The fractures were treated by means of pinning and a cast, and bishydroxycoumarin was administered from April 20 to May 2. He was discharged on convalescent furlough on May 14 and readmitted on June 21, when the cast was changed and the pins were removed. On June 29 a tender lymph node was palpable in the right inguinal region, and, later, evidence of thrombophlebitis was discovered. He was given 300 mg. of bishydroxycoumarin on July 10, 200 mg. on July 11, and 50 to 100 mg. daily thereafter, in order to maintain the prothrombin time approximately double that of the control. No difficulty was encountered until July 28, when attempts were made to ambulate the patient, and signs of vasospasm developed in the fractured leg. A lumbar sympathetic block was done on July 28, with very good symptomatic results, and it was, therefore, repeated on July 31. On Aug. 2 the patient became sick, and by Aug. 3 there was evidence of a mass in the right lower quadrant, an ileus with vomiting, and a leukocytosis of 24,700. The prothrombin time at this time was 33 sec., as compared with a control of 15 sec. A retroperitoneal hematoma was suspected, but, because of the high white cell count and the age of the patient, it was felt that an appendical abscess could not be excluded. Therefore, on Aug. 4, the symptoms having progressed, surgical exploration was felt to be indicated. A transverse incision was made in the right flank, and retroperitoneal exploration revealed the psoas uscle to be distended with blood, the blood having extravasated usely between the muscle fibers. Because of the danger of orrhage, exploration through this incision was discontinued, nd a paramedian abdominal incision was made. The rectus muscle was retracted laterally, and the psoas muscle was approached transperitoneally. Careful examination of the muscle revealed no evidence of a bleeding vessel. The hemorrhage was diffuse; there was no clot formation, and a bleeding point could not be identified. A reasonable amount of blood was evacuated from the muscle by splitting the psoas fibers longitudinally. The contents of an ampule of topical thrombin were irrigated through the muscle fibers, and a gauze pack was placed into the defect in the muscle and brought out through the retroperitoneal incision. A Penrose drain was brought out through the abdominal incision. The wounds were closed in layers, and recovery from this operation was uneventful. No further evidence of bleeding developed in this man. The day after the operation he had an erythrocyte count of 3,590,000 and a leukocyte count of 12,200, with 11 gm. of hemoglobin. The prothrombin time at this time was still 35 sec., as compared with a normal of 15 sec., but by the next day it had fallen to 19 sec. The use of bishydroxycoumarin and heparin, was of course, discontinued.

COMMENT

A paravertebral procaine injection should not be considered to be a completely innocuous procedure. Although complications following this injection are exceedingly rare in normal patients, the deep injection of procaine in a hypocoagulatory patient may be followed by serious and undesirable effects. It is probably a good rule never to do any deep injections in a person who has had his clotting mechanism deranged.

In thrombophlebitis and phlebothrombosis the conflict between paravertebral block and anticoagulant therapy is easily resolved. Phlebothrombosis requires anticoagulant therapy and paravertebral block is contraindicated. Thrombophlebitis requires a lumbar block more urgently than anticoagulant therapy. The most awkward situation occurs in frostbite or impending arteriosclerotic gangrene when it would seem that both anticoagulants and lumbar blocks are indicated for maximum therapeutic effect. However, in the case of frostbile it is probably wiser to use one or the other and not to combine the two types of treatment. For arteriosclerosis the wisest course of action is lumbar sympathectomy followed by anticoagulant therapy in the postoperative period.

SUMMARY

The danger of doing a paravertebral lumbar sympathetic block in a patient receiving anticoagulant therapy is emphasized. The successful treatment of a psoas hematoma following such a procedure is described. The combination of anticoagulant therapy and lumbar sympathetic block is briefly discussed.

74th and J Sts.

ANGIONEUROTIC EDEMA DUE TO FOREIGN BODY LONG PRESENT IN THE NOSE

REPORT OF A CASE

Bunim Pruzanski, M.D., Tel-Aviv, Israel

The following case report is considered of interest because an organic foreign body in the nose, a peanut, had given no local symptoms for years and was accidentally disclosed during routine otolaryngological examination in connection with angioneurotic edema, a sequel of the foreign body. The discovery of foreign bodies long present in the nose is an uncommon occurrence. Worthington[1] described a foreign body present for 13 years, Camerer,[2] for 17 years, Kelemen,[3] for 28 years, and Marks,[4] for 12 years. In none of these cases had the foreign body become the cause of angioneurotic edema as in the case described below, and I was unable to find a similar case in the available literature.

REPORT OF CASE

The patient, M. S., a married woman aged 21, was first seen on Nov. 17, 1949, when she was sent to me by the allergist, Dr. Loev, for routine otolaryngological examination and exclusion of focal infection. She complained of periodic swellings, appearing in various parts of her body for several years. Her eyelids, lips, forehead, wrists, and lower parts of her legs had been particularly affected. Her suffering had increased gradually, and during the last year she had awakened every morning with a

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The patient was presented at the Meeting of the Tel-Aviv Section of the Israel Otolaryngological Society, November 17, 1949.

[1] Worthington, R. A.: Foreign Body Removed from the Nose after 13 Years, Proc. Roy. Soc. Med. **12**: 159-160, 1918-1919.

[2] Camerer, C. B.: Foreign Body in Nares, U. S. Nav. M. Bull. **19**: 168-169, 1923.

[3] Kelemen, G.: Spontaneous Expulsion of Foreign Body by Transmigration through Nasal Wall After 28 Years, Laryngoscope **55**: 375-379, 1945.

[4] Marks, M. I.: Foreign Body (Twig) in Nose, Am. Otol., Rhin. & Laryng. **58**: 289-292, 1949.

swelling of the face that usually receded during the day. Swellings of the extremities had occurred every week. She had had no pains except light headaches, and no fever but had suffered from very frequent colds. She remembered that when she was eight years old a tooth extraction of the left first upper incisor had been performed owing to some swelling of the upper lip. During the last few years she had been under the treatment of a general practitioner, had undergone several examinations allegedly including the ear, nose and throat, with no results, and she was finally transferred to the allergist.

The examination showed a normally developed young woman with normal throat and ears. In the mouth the left first upper incisor was missing and was substituted for by an artificial tooth. The nose was patent with no pathologic discharge. The floor of the nasal fossa was of equal level on both sides, but on the left, in the third anterior part of the floor, a greyish spot was disclosed. Touching of the spot with a probe yielded the impression of something hard and evoked a suspicion of a rhinolith deeply and strongly embedded in the floor of the nose. After several attempts to move the hard mass by means of a blunt hook, without anesthesia, the foreign body broke and was finally removed in three parts, the procedure causing almost no bleeding. Reconstruction of the parts produced a whole peanut, still in its shell, which measured 12 mm. in length and 7 mm. in diameter. The shell was relatively thick and hard. The kernel appeared to be a uniformly changed mass, soft, of cheeselike consistency, and strongly fetid. After removal of the foreign body a deep corresponding hollow in the floor of the nose became evident. The surface of the hollow was rough, and bleeding was nearly absent. The anterior part of the left inferior concha was underdeveloped.

The patient was exceedingly surprised when she saw the foreign body, and could not trace in her memory any episode suggesting the way or time it had entered her nose. Next morning there was no swelling of the face. The patient was sent home. I next saw her on July 30, 1950. Since the removal of the foreign body the bouts of swellings and colds disappeared completely, and the patient was cured and happy. In the nose, on the left side, I could no longer see the hollow, which was now filled up and covered with normal mucous membrane. The anterior parts of the left inferior concha remained underdeveloped.

COMMENT

The presence of the foreign body in the nose for at least 17 years may be assumed, since the patient could not remember putting it into her nose. The assumption is corroborated by the anatomical changes in the floor of the nose and of the left inferior concha and by the mentioned incident of lip swelling and tooth extraction in the patient's childhood. Of unique interest is the fact that the organic foreign body, the peanut remained undecayed as a whole for many years and caused no local symptoms but colds. In effect, no suspicion of its presence arose.

The case is an important contribution to the etiology of angioneurotic edema, as it shows that a foreign body in the nose, with no local symptoms, may cause angioneurotic edema. The complete recovery after removal of the foreign body is ample proof of it.

SUMMARY

A case of angioneurotic edema due to a foreign body long present in the nose is described.

The foreign body, a whole peanut, still in its shell, gave no local symptoms, supposedly, for 17 years but caused angioneurotic edema of the face and upper and lower extremities.

Removal of the foreign body resulted in full recovery.

28 Allenby Road.

REMISSION OF CUSHING'S SYNDROME FOLLOWING ADRENALECTOMY

REPORT OF A CASE

Seymour F. Wilhelm, M.D.
and
Emmanuel Dickler, M.D., New York

Recent studies with corticotropin (ACTH) and cortisone indicate that Cushing's syndrome is basically caused by hypersecretion of certain adrenal cortical steroid hormones.[1] Such adrenal hyperfunction, or perhaps dysfunction, may be caused by an intrinsic lesion of one or both of the adrenal glands, or may be activated by hormonal hypersecretion of the pituitary and possibly also of other endocrine glands. This newly acquired evidence supports the assumption that Cushing's syndrome may occur on a purely functional basis in the absence of demonstrable pathological changes in the adrenal glands. While some lesion of an adrenal gland, such as hyperplasia or neoplasm, has been demonstrated in most cases of Cushing's syndrome,[2] there are a few authentic cases in which the adrenal glands were found histologically normal.[3] Such was the case reported here of classical Cushing's syndrome in a woman aged 45, whose progressive downhill course was suddenly interrupted by a total left adrenalectomy.

REPORT OF A CASE

History.—On May 8, 1948, a female schoolteacher aged 45 was referred to the medical service of the Beth Israel Hospital by Dr. Arthur Fishberg with a diagnosis of Cushing's syndrome. Her chief complaints were swelling of the body, excessive hairiness, and the voiding of large amounts of urine. She had first noticed a rather sudden onset of swelling of the face, trunk, and lower extremities about 10 months prior to her hospital admission. She had next noticed an increasing adiposity of the face and trunk, and had discovered that she had gained 30 lb. (13.6 kg.). At the same time, she had become aware of an increased growth of thick dark facial hair, and a thinning and loss of scalp hair. Her skin had become quite dry and had assumed an unusual reddish color. Her breasts had decreased in size.

The patient had noticed an increase in thirst and appetite, as well as frequent urination. A little later there had been some weakness of the lower extremities and difficulty in walking. Vision had become poor, with blurring of distant objects. The menstrual history, which had previously been quite normal showed that she had been amenorrheal for the past eight or nine months. For about the same length of time, the patient had com-

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The authors acknowledge with appreciation the valuable suggestions and help of Dr. Arthur M. Fishberg.

[1] Levine, R., and Weisberg, H. F.: Cushing's Syndrome, in Progress in Clinical Endocrinology, New York, Grune and Stratton, p. 160, 1950. Ralli, E. P.: Adrenal Cortex: Transactions of the First Conference, Nov. 21-22, 1949, New York, Josiah Macy, Jr., Foundation, 1950.

[2] Oppenheimer, B. S., and Silver, S.: The Variability in the Pathological Findings in Cushing's Syndrome: A Report of 6 Cases, Tr. A. Am. Physicians 52:146, 1937. Paschkis, K. E.; Herbut, P. A.; Rakoff, A. E., and Cantarow, A.: A Case of Cushing's Syndrome with Adrenal Cortical Hyperplasia, Without Pituitary Basophilic Adenoma or Hyperplasia, J. Clin. Endocrinol. 3:212, 1943.

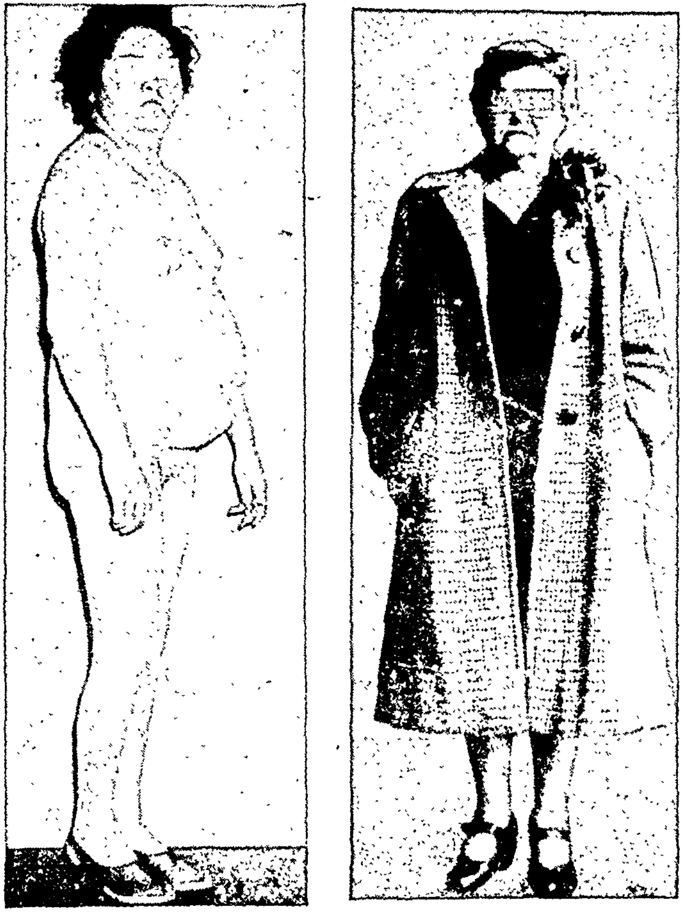
[3] Cushing, H.: Papers Relating to the Pituitary Body, Hypothalamus and Parasympathetic Nervous System, Springfield, Ill., Charles C Thomas, 1932. Kepler, E. J.; Sprague, R. G.; Mason, H. L., and Power, M. H.: The Pathologic Physiology of Adrenal Cortical Tumors and Cushing's Syndrome, in Laurentian Hormone Conference: Recent Progress in Hormone Research, Proceedings, 1947-1948, New York, Academic Press, Inc., 1948, Vol. 2, p. 345.

plained of moderately severe, sharp, fairly constant, nonradiating pain in the left loin. She gradually had become more irritable and mentally unstable, with frequent episodes of depression and weeping.

The patient had been healthy prior to the onset of the above symptoms, and both the past history and the family history were not remarkable.

Physical Examination.—The patient's appearance was typical of Cushing's syndrome; she had a moonlike face, buffalo-type adiposity, plethora, and numerous large purplish striae over the lower abdomen. There was an excessive amount of thick, dark, coarse facial hair whereas the hair on her scalp was sparse and dry. Her breasts were small and flabby. Her weight varied between 126 and 128 lb. (57.2 and 58.1 kg.).

Examination of the heart revealed a rough apical systolic murmur. The blood pressure was 180/120. The abdomen was very obese but no masses were palpable. There was slight tenderness in the left costovertebral region.



Left, preoperative photograph (May 1948). Right, photograph made two and one-half years after the operation (Dec. 16, 1950).

Laboratory Data.—Urine examination before breakfast on May 10, 1948, showed 1 + glucose and 1 + albumin, but no acetone. Microscopic examination was negative. Glucose from 2 to 4 + was found in all the urine specimens examined during the next three days. The basal metabolic rate was + 3.

On May 11 fasting blood glucose was 194 mg. per 100 cc.; a glucose tolerance test showed a typical diabetic curve. The total blood proteins were 6.9 mg.; albumin 4.9; globulin 2.0. Blood chlorides were 588 mg. per 100 cc.; blood sodium 308.8 mg. per 100 cc.; blood potassium 18 mg. per 100 cc.

On May 13 a 24-hour specimen of urine was collected for determination of the 17-ketosteroids. The total volume was 1,960 cc., and contained 15.9 mg. of 17-ketosteroids. A test for dehydroisoandrosterone was negative.

A second urine specimen collected on May 17 was also negative for dehydroisoandrosterone. The total volume was 2,820 cc. and the 17-ketosteroids were 21.3 mg.

On May 18 the blood calcium was 8.6 mg. per 100 cc.

An electrocardiogram was reported as showing insufficient changes to indicate myocardial involvement.

An electroencephalogram revealed generalized dysrhythmia and a moderate increase in fast and slow activity. The possibility of a deep-seated midline lesion was considered. Visual field studies showed no significant abnormality.

X-ray Examination.—A lateral film of the skull reveale some mottling of the bones of the vault, but the sella turcic was normal in size. There was some absorption of the posterio clinoids.

The lungs were normal, but there was a slight ventricular en largement of the heart.

The long bones showed no abnormality, but the lumbar spin was the seat of productive spondylitis.

On excretory urography, the pelves and calyxes of the kidney were not well visualized, and the bladder appeared normal.

Perirenal insufflation was done on May 14, 1948. With a pneu mothorax apparatus 500 cc. of air was injected on each sid Both kidneys were normal in size, shape, and position, and bot adrenal glands were clearly delineated. The right adrenal shado appeared normal in size and shape; the left was somewhat larg than the right.

In view of the laminagraphic findings and the progressive unfavorable course of the patient, it was decided to explore th left adrenal region. On the day prior to operation, adrenal co tex extract and 10 gm. of sodium chloride were administere

Operation.—On May 20, 1948, the left adrenal gland was e posed through a lumbar incision. It was encased in a sheath adherent fat, but was normal in size, shape and appearanc Nevertheless, a total left adrenalectomy was done.

The pathological report made by Dr. Henry Brody showe the following:

Specimen: Left adrenal gland and fat tissue. Gross: Resecte adrenal gland together with several very tiny fragments adrenal tissue, in all weighing 4.7 gm. The gland measur 4.1 x 2.7 cm. and was essentially quadrilateral in shape. showed the usual thickened central region and at the thicke point measured 0.8 cm. On section practically no medulla w seen at any of the many levels examined. Distinct laminati was not made out. The outer cortical zones were yellow to y low-brown with numerous pinhead brighter yellow areas. An o casional somewhat larger than pinhead, deep brown to bla nodule was seen. There was an inner deep brownish-black zo of irregular thickness. Sections in formaldehyde solution and gelatin were made. Sections for special histochemistry we made, and the remainder of the gland was taken for lipidanalys About 1 tablespoon of periadrenal fat tissue was received. O section was made.

Microscopic Examination: The cortex was relatively thic The glomerular zone tended to be thin and poorly formed. T fascicular zone was the thickest portion of the cortex, but show fasciculate arrangement only in part. Portions of it were qui rich in lipid, as seen in Sudan IV and Sudan black stains. Oth portions were quite granular and in the lipid stains showed n fat. The reticular zone contained less pigment than would ha been judged from the gross appearance of the gland. No fuchsi ophil cells were found. In places the cortex appeared somewh nodular, and an occasional extra capsular nodule was foun An occasional cluster of cortical cells was seen in the midst the medulla, and these tended to give a somewhat deeper Sud reaction than other lipid-containing cortical cells. There w some hemorrhage in the capsule and cortex, probably of tra matic origin.

Diagnosis: Nonenlarged adrenal gland, showing perhaps ve slight hyperplasia of cortex.

Postoperative Course.—The patient withstood the operati procedure well, and returned to the ward in good condition. H postoperative course was uneventful, with only minimal febri reaction. Her blood pressure was maintained at a satisfacto level, and on the second postoperative day was 148/70. Th wound healed by primary union.

During her postoperative hospital stay, the patient reporte a sense of well-being and was able to walk about with greate ease. Her spirits improved and her visual disturbance was als diminished. She left the hospital on May 31, 1948. At home th physical and mental recovery continued steadily.

Follow-up Observations.—A progress note on July 7, 1948 pointed out the following. Clinically, the patient appeared to b much improved. Her mental attitude was much better. Th leonine facies, which she had, was much lessened. Her sister stated that she was more normal at home, having regained her sense of humor, and the patient was now able to partake in social functions.

After the examination on July 7 a course of x-ray therapy directed to the pituitary was begun. There was administered 2,400 r (scatter) to each of the left temporal, right temporal and forehead portals from July 7 to Aug. 4, 1948. The sella dose was calculated at 2,640 r. The physical factors were 200 kv.; 0.5 copper; 1.0 aluminum; half value layer 1.39 mm. copper; target skin distance 50 cm.; and r per minute 24.6.

Improvement continued, and in August, three months after the left adrenalectomy, the urinary 17-ketosteroid excretion had dropped from a preoperative level of 21.3 mg. in 24 hours to 9.8 mg. The blood glucose was now normal and there was no glucose in the urine. The blood pressure, which prior to operation had been 180/120, had now fallen to 140/80.

On Sept. 30, 1948, the patient stated that she felt completely normal. She had lost all the symptoms of diabetes and the abnormal hair had fallen out. The patient's general appearance was normal; she was cheerful and less obese. Her blood pressure was 134/70.

On Dec. 24, 1949, the patient stated that she felt well mentally and physically and that she was carrying a full program in her school work. As a result of diet and medication (amphetamine [benzedrine®] sulfate and thyroxin), she had lost 36 lb. (16.3 kg.) in the preceding four months. Her blood pressure, however, was 190/90. This elevation was ascribed to the amphetamine and thyroxin. A urine specimen was negative for glucose.

On Jan. 15, 1949, the patient was well and appeared normal except for a recent weight gain of 15 lb. (6.8 kg.). On Jan. 14 the patient began to menstruate for the first time since the onset of her illness about one and one-half years previously. Her blood pressure was 140/90. She was placed on a low caloric diet in order to determine whether her recurrent obesity was due to overeating.

On Feb. 19, 1949, her blood pressure was 140/90. The abdomen was only slightly obese, and there was complete loss of the abnormal hair. The patient's weight had remained stationary.

On April 2, 1949, she was well, but still obese. Menstruation occurred regularly every month, the period lasting four days. Her blood pressure was 130/80. She weighed 159 lb. (72.1 kg.). X-ray examination of the skull showed some recalcification of the posterior clinoids. The skull otherwise appeared the same as on previous examination.

On June 17, 1949, the patient's only complaint was that of obesity. The blood pressure was 135/90, and menstruation continued regularly at monthly intervals.

On July 18 the patient had lost 8½ lb. (3.8 kg.) while under the care of her private physician. Her blood pressure was 140/80. She was menstruating at the time of this examination.

On Aug. 17 the patient's only complaint was that of general tiredness. There was evidence of a recent weight loss. Her blood pressure was 145/70.

On Nov. 5 the patient weighed 135 lb. (65.2 kg.), representing a loss of about 25 lb. (11.3 kg.) as a result of a low caloric diet and amphetamine. The abdominal striae were no longer present, but an incisional lumbar hernia was noted. The blood pressure was 160/80.

On May 10, 1950, the patient's only complaint was that of bilateral ankle edema after prolonged standing. She was actively employed in her profession. The menstrual periods had been regular until Nov. 1949, when they had suddenly stopped. The stopping was considered to be menopausal. The patient's weight was 115 lb. (52.1 kg.) and her blood pressure was 180/90. She was very excited at the time of this blood pressure reading. Urine examination was negative for glucose.

On Dec. 16, 1950, the patient stated that she had been feeling well except for occasional headaches and slight weakness in the left leg when walking upstairs. She was working regularly and enjoying an active social life. The heart sounds were normal and regular. Her blood pressure was 165/115; and her weight, 116 lb. (52.6 kg.). She complained of a moderate sized left lumbar incisional hernia. The 17-ketosteroids were 13.9 mg. in 24 hours. Blood sodium was 137 mEq.; chlorides, 104.8 mEq.; glucose, 116 mg. per 100 cc.; total proteins, 6.22 mg. per 100 cc.; albumin, 4.37; and globulin, 1.85.

COMMENT

A woman aged 45 with a classical Cushing's syndrome was apparently completely relieved after total surgical excision of a grossly normal adrenal gland, and subsequent pituitary irradiation.

Remission of Cushing's syndrome after the enucleation of an adrenal neoplasm has occurred by now with sufficient frequency not only to establish the causal relationship of such tumors to this disease, but also to indicate their surgical removal whenever possible.

In 1936 Kessel[4] reported Crile's case of a typical Cushing's syndrome in a girl aged 17. Following bilateral adrenal denervation and a right partial adrenalectomy, the hirsutism and obesity disappeared, the blood pressure and sugar tolerance returned to normal, and the patient was apparently well for about one and one-half years. Then, however, the patient died rather suddenly of an acute intercurrent infection, and, at autopsy, a basophilic adenoma of the pituitary was found. Relief of symptoms had been accomplished by reducing the adrenal function even though the primary lesion was in the pituitary.

Urinary 17-Ketosteroids

Date	Urine Volume in 24 Hr.	17-Ketosteroids in 24 Hr.	Dehydroiso-androsterone
5/13/48	1,960 cc.	15.9 mg.	Negative
5/17/48	2,820 cc.	21.3 mg.	Negative
5/20/48	Left Adrenalectomy		
5/25/48	2,080 cc.	10.6 mg.	....
8/27/48	590 cc.	9.8 mg.	....
2/12/49	860 cc.	22.1 mg.	....
11/ 5/49	1,080 cc.	12.3 mg.	....
12/16/50	1,710 cc.	13.9 mg.	....

Recent experience with corticotropin and cortisone indicates clearly that the symptoms and signs of Cushing's syndrome are basically due to hypersecretion of steroid hormones by the adrenal cortex. Surgical excision of an adrenal is probably followed by a sudden diminution in the total cortical hormone secretion. This, indeed, seemed to be the case in two adrenalectomies for hyperplasia with female pseudohermaphroditism done by one of us (S. F. W.).[5] In both of these patients the 24-hour excretion of the neutral 17-ketosteroids was almost exactly halved after total excision of the one adrenal.

In the patient described in this article, the prompt remission of the Cushing's syndrome after surgical excision of a grossly normal adrenal gland may also be ascribed to an abrupt quantitative reduction in adrenal cortical hormone secretion.

The evaluation of the pituitary irradiation is more difficult, since it was begun only seven weeks after the adrenalectomy when marked improvement had already occurred. In previous reports, the results of radiotherapy in Cushing's syndrome have been inconstant and at best temporary, except in isolated cases. The x-ray therapy in our patient may, however, have contributed to the completeness of the remission, as well as to its duration.

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[4] Kessel, F. K.: Morbus Cushing: Ein Überblick über Klinik und Kasuistic des basophilen Hypophysenadenoms. Ergebn. inn. Med. u. Kinderh., 50: 620, 1936.

[5] Wilhelm, S. F.: Resection of Hyperplastic Adrenal Glands for Female Pseudohermaphroditism. J. Mt. Sinai Hosp. 14: 679, 194[illegible].

While spontaneous remissions of Cushing's syndrome have at times been observed, the prompt improvement after operation affords strong evidence that in this case the adrenalectomy was the decisive stroke which interrupted and reversed the morbid course.

40 E. 83rd St.

ASPIRATING BRONCHOSCOPE FOR THE GENERAL SURGEON, OBSTETRICIAN, AND ANESTHETIST

Ernest B. Emerson Jr., M.D., Rochester, New York

Over the last 10 yr. the problem of postoperative atelectasis, the problem of the patient with aspirated vomitus, and similar problems have become more generally appreciated. Indeed, the literature contains an ever increasing volume of material on such emergencies, but a discussion of them is beyond the scope of this paper. However, as a result of the more general appreciation of these emergencies, my associates and I have noted an ever increasing number of inquiries from former students and residents, located where experienced bronchoscopists are not available, as to what instruments they should buy to care for their patients. Many of these men are working at places where financial resources are limited, and in more than one communication the request has included a desire for information concerning the absolute minimum of [illegible] needed for bronchoscopic examination. With [illegible] factors in mind, that is, (1) reducing the equipment to a minimum in order to cut the cost, (2) simplifying the equipment in order to eliminate the technical difficulties (usually electrical) inherent in the more conventional bronchoscopes, and (3) maximizing ease of insertion and safety in the hands of men not especially trained in endoscopy—we have made certain modifications in bronchoscopes already existing.

As in the case of the equipment previously described for handling tracheobronchial aspiration in the newborn,[1] this bronchoscope is designed not as a substitute for the more highly developed instruments and techniques but as an instrument which may be lifesaving under the circumstances already indicated.

THE INSTRUMENT

To fulfill the first two requirements, that is, to limit the cost and total amount of equipment necessary, it was decided to incorporate into one instrument the power supply, oxygen carrier, and bronchoscope. Thus, it was possible not only to eliminate battery boxes, transformers, and light cords from the cost but to simplify the whole bronchoscopic setup as well. Thi was not entirely a new idea since anesthetists have ha laryngoscopes made this way for years, and Dr. Feni- more E. Davis has designed such a bronchoscope.

The third requirement, that is, ease of insertion an safety, posed more of a problem. However, experienc over the past 11 yr. in training surgical interns in al sorts of bronchoscopes has pointed repeatedly to th fact that the newcomer to bronchoscopy finds th Israel type of instrument[2] by all odds the easiest t master. In addition to ease of insertion, this type c bronchoscope, since it is inserted directly, eliminate another accessory, which in itself is hard to handl namely, the laryngoscope. Therefore, the battery containing handle of the instrument was placed in position opposite to that of the Jackson and presen existing battery-containing bronchoscopes. This re sulted in a bronchoscope that can be used with fair eas of insertion even by the beginner.

The barrel or tube of the bronchoscope is 2¼ in (5.72 cm.) shorter than the standard adult diagnosti Israel bronchoscope and is, therefore, safer since i cannot be inserted deeply into the bronchus wher damage is most likely to occur. It is, however, lon enough for either bronchus to be entered and allo direct vision for guiding the suction tube deeper int the lung. Further, the tube of the bronchoscope tapered, being 7 mm. at the distal end and 9 mm. at th handle.[3] This tapering has two advantages: First, fo the untrained eye, vision through a long tube is facil tated, and, second, more freedom of motion with th suction tube is allowed without undue movement the bronchoscope. Both of these advantages are appr ciated by the novice and by the person who does only a occasional bronchoscopy.

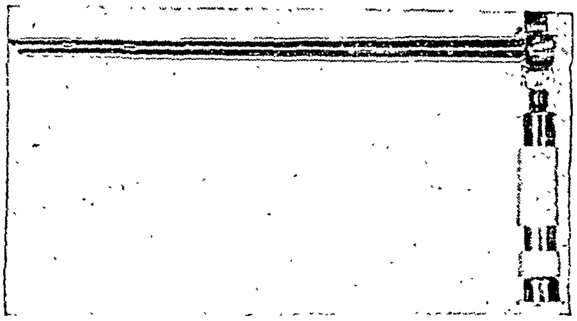

Fig. 1.—The bronchoscope. The handle contains the batteries and h been placed so as to be dependent during insertion of the instrument. T tube is narrower at the distal end.

TECHNIQUE

It is not the purpose of this paper to go into the fir points of bronchoscopic techniques as used by thorac surgeons and endoscopists, but, since the instrume is being presented for the emergency use of operato belonging to groups other than the foregoing, certai points in its use should be emphasized.

If the patient is under general anesthesia, the prob lem of coughing and gagging does not arise. Howeve if the emergency involves a conscious patient it i usually sufficient to anesthetize the throat by carefull

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From the Department of Surgery, Division of Otolaryngology, University of Rochester School of Medicine and Dentistry.

The bronchoscope herein presented is available, to the profession, at The Foregger Company, Inc., 55 W. 42d St., New York 18.

[1] Emerson, E. B., Jr.: A Safe and Positive Method of Tracheobronchial Aspiration in the Newborn, J. A. M. A. **144**: 613 (Oct. 21) 1950.

[2] Israel, S.: An Improved Bronchoscope and Esophagoscope, Arch. Otolaryng. **14**: 479 (Oct.) 1931.

[3] Negus, V. E.: The Simplification of Technique in Peroral Endoscopy, Brit. M. J. **2**: 1223 (Dec. 23) 1939.

spraying it three to four times with 2% tetracaine (pontocaine®) hydrochloride. This will eliminate or deaden the gag and cough reflexes sufficiently enough to allow insertion of the bronchoscope. Tetracaine may be used intratracheally if desired, but the nature of the emergencies for which the instrument was designed contraindicates actual tracheal anesthesia, since coughing aids in bringing the foreign material to the suction tip once the tracheobronchial tree has been entered.

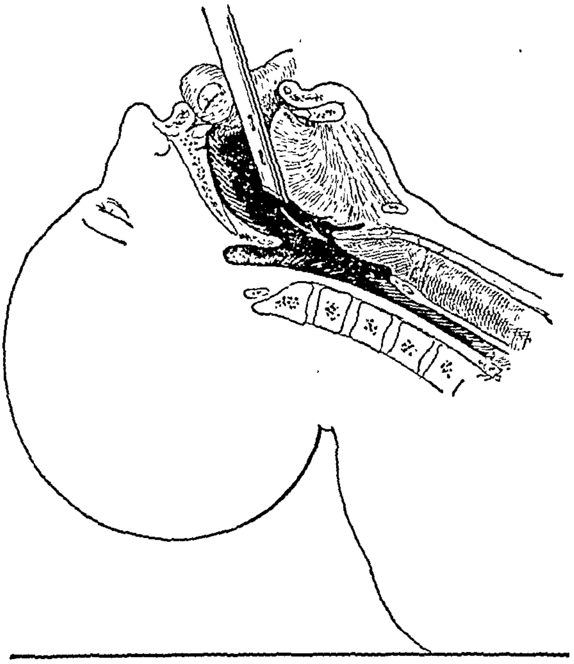


Fig. 2.—The beginning of the insertion of the emergency bronchoscope over the left thumb to the point at which the epiglottis is visualized.

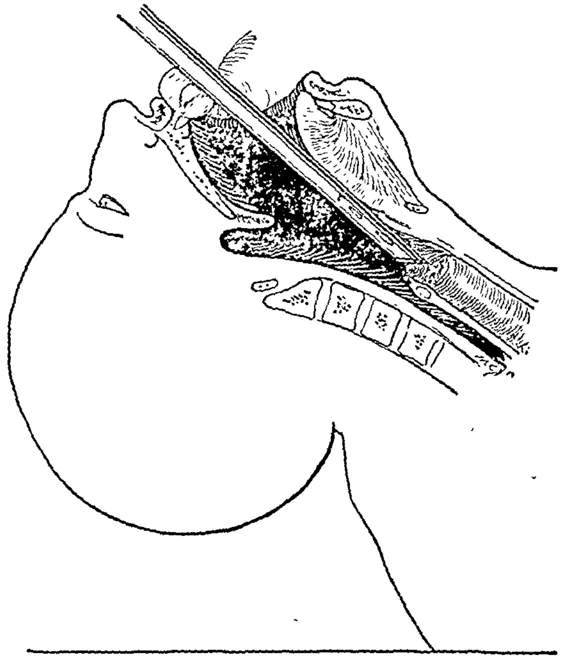


Fig. 3.—The bronchoscope has been advanced to the vocal cords, both the tongue and epiglottis having been pushed up and away by the tube.

Most physicians using a bronchoscope for the first time will find the atmosphere of the operating room and the additional help available there comforting. However, once the instrument has been mastered it is comparatively easy to perform the procedure in the patient's room. By placing the patient diagonally on a Gatch bed, the necessary position can be obtained; in the absence of assistance a pillow under the shoulders and neck will facilitate matters. It is under these circumstances that a one-piece bronchoscope and light source is most fully appreciated.

Insertion of the bronchoscope is initiated by placing the left thumb over the upper teeth or gum, where it serves as a fulcrum and a guard against dental damage. Over this thumb the instrument, held in the right hand, is inserted into the mouth until the uvula comes into view (Fig. 2). Then, using the thumb as a fulcrum, the handle of the scope is brought slowly down, the barrel thus lifting the tongue up out of the way (Fig. 3). At the same time, the instrument is advanced deeper into the throat and, as the epiglottis is visualized, is passed under it, the epiglottis in turn being lifted up and away in the same manner as the tongue. At this point the vocal cords are visualized, and the head is then extended far enough to allow full view of the glottic chink. As soon as the cords open, in inspiration, the scope is turned sideways, and the bill is slipped quickly between the cords. From this point on the tube is easily advanced, under direct vision, to the desired position in either main bronchus (Fig. 4). The simple insertion of the suction tube, the only other instrument needed, and the removal of the offending material completes the procedure, and the two instruments are quickly withdrawn together.

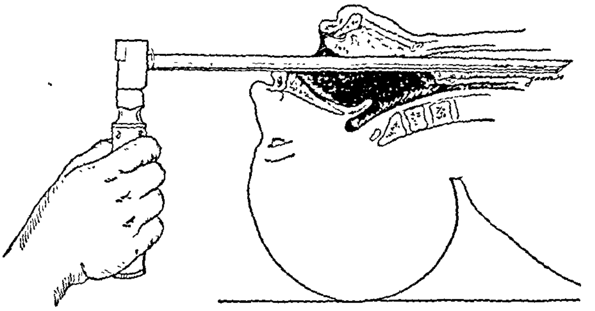


Fig. 4.—With the head extended, the bronchoscope has been carried on into the trachea.

SUMMARY

An emergency aspirating bronchoscope suitable for use by surgeons, obstetricians, and anesthetists has been presented. The instrument reduces the total cost of equipment to a minimum since it eliminates many of the accoutrements of conventional bronchoscopy. The instrument has been designed with an eye to ease of use and maximum safety in the hands of operators not specializing in endoscopy. The bronchoscope described has been found satisfactory for the use for which it was designed—that is, the emergency aspiration of foreign material, such as mucus, blood, and vomitus, in atelectatic lungs of traumatic or postoperative origin or the removal of aspirated material from the tracheobronchial tree of the flooded lungs of the very ill. It is believed that the availability of such equipment will, in many instances, be lifesaving in the absence of a trained bronchoscopist. It has occurred to me, on the basis of three and one-half years of active duty with the armed forces, that this instrument would make an ideal all-purpose bronchoscope for military purposes.

26 Strathallan Pk.

DISLODGING FOREIGN BODIES, INSPIRED OR SWALLOWED BY CHILDREN, WITH AMINOPHYLLINE

I. Newton Kugelmass, M.D., New York

Children inspire or swallow foreign bodies because they explore things with their mouths. Inspiration of such objects into the air passages is usually the result of a sudden gasp for breath after excitement, crying, or laughing, but swallowing may force an object over the laryngeal aperture. If a foreign body lodges in the esophagus, it is too large or too spiky to pass through to the stomach.

An asthmatic girl swallowed a bead without her mother's knowledge, and soon a spastic persistent cough developed. Because of the indefiniteness of signs in the lungs, diagnoses of whooping cough, enlarged mediastinal glands, and bronchopneumonia were made. I observed her first during a true asthmatic attack and prescribed aminophylline solution by rectal retention. The asthmatic attack cleared temporarily, and the bead that had lodged in the bronchus was coughed up.

This observation led me to use aminophylline in other patients suspected of inspiring or swallowing foreign bodies. Its relaxing effect on the bronchial musculature was prompt. Rectal administration of 0.25 gm. (4 grains) aminophylline in solution dislodged small, smooth foreign bodies in the esophagus, larynx, and bronchus in the following cases. If this simple procedure failed, the patient was hospitalized for further study.

REPORT OF CASES

CASE 1.—Congenital stenosis of the esophagus without fistula formation became apparent with the introduction of semisolid food in a 4 mo.-old-female child. Diagnosis was confirmed by roentgenologic studies. Treatment by esophagoscopic dilatation was carried out by Dr. Chevalier Jackson. In the interim the infant experienced marked distress after taking solid food in excess of her capacity. She vomited, coughed, struggled, and became cyanotic when she ate too much or too quickly. The mechanical difficulty was cleared completely and effectively with rectal retention of a solution of 0.2 gm. (3 grains) aminophylline containing 0.06 gm. (1 grain) ethyl aminobenzoate (anesthesin®) to prevent local pain and subsequent nausea.

CASE 2.—Catarrhal esophagitis complicated pneumonia in a 3 year old boy. He experienced substernal pain on swallowing, dysphagia, and hematemesis. The symptoms cleared at the onset with a rectal retention of 0.20 gm. (3 grains) aminophylline and 0.06 gm. (1 grain) ethyl aminobenzoate in solution. The difficulty in swallowing on the second day was completely alleviated by the same treatment.

CASE 3.—Esophageal foreign body was suspected in a 5 year old girl who said that something stuck in her throat. She refused to take solid food and had difficulty in swallowing. Then she began to cough, gag and choke. Frightened, she volunteered the information that she swallowed a pearl button. Fluoroscopic examination localized it in the cervical esophagus. A solution of 0.25 gm. (4 grains) aminophylline and 0.06 gm. (1 grain) ethyl aminobenzoate was given by rectal retention before admission to the hospital for esophagoscopic removal. The button was released spontaneously.

CASE 4.—Laryngeal foreign body was the unsuspected ca of croupy cough with aphonia and moderate fever in a 14 mo old girl. The family physician admitted her to the contagi ward. Treatment with diphtheria antitoxin and penicillin in tions, steam inhalation, and emetics was unsuccessful. Fina roentgenographic and laryngoscopic examination revealed a eign body in the sagittal plane, but the mechanical problem fo a preliminary attempt at removal. The infant was dischar from the hospital before direct laryngoscopy could be repea I prescribed aminophylline solution by rectal retention th times a day. On that same day a plastic part of a toy was coug up. Thereafter, the hoarseness, dyspnea, and wheeze cleare

CASE 5.—Laryngeal foreign body was lodged four mo without producing symptoms in a 7 year old girl. She was tre with rectal retentions of aminophylline solution for a se attack of asthma. She suddenly coughed up the ivory tip c pencil. Apparently, this small, smooth object produced repe attacks of coughing that were confused with the accusto asthma. Eventually the larynx had adjusted to this foreign bc as there were no such symptoms for months except dyspnea exertion.

CASE 6.—Bronchial foreign body was diagnosed from history of a 4 year old girl who suddenly began to choke du play. She explained that the glass eye of her doll "went in." apparently went straight down the trachea into the larger m vertical right bronchus. The breath sounds were reduced, wheezing became audible on that side. Aminophylline solut was given by rectal retention before hospitalizing the child. object was coughed up and all symptoms cleared.

1060 Park Ave.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

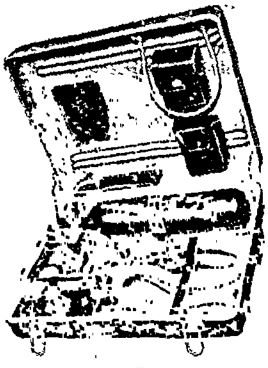
The Council on Physical Medicine and Rehabilitation authorized publication of the following report.

RALPH E. DE FOREST, M.D., *Secretar*

M. S. A. PNEOLATOR ACCEPTED

Manufacturer: Mine Safety Appliances Company, 201 N Braddock Ave., Pittsburgh 8.

The M. S. A. Pneolator is a device for administering artifi respiration by means of intermittent positive pressure with *suction*. The apparatus is housed in a carrying case resemb a heavy suitcase or steamer trunk, the motive power is supplied by compressed oxygen in a cylinder. carrying case measures 20 by 66 by cm. (8 by 26 by 21 in.), and with contents it weighs 23 kg. (50 Crated for shipment it measures 2 68 by 58 cm. and weighs 25 kg. lb.). Spare cylinders and an auxil attachment for the simultaneous tr ment of a second patient are *not* cluded in the above weights.



M. S. A. Pneolator

From acceptable sources the Co cil obtained evidence that the phys performance of the apparatus was represented by the manufacturer. cause evidence at hand, however, is not sufficient to establ its usefulness as an emergency respirator for use *by fire dep*ments and rescue squads, it is not accepted for this purpo The Council on Physical Medicine and Rehabilitation voted accept the M. S. A. Pneolator as an artificial breathing ap ratus for use in hospitals, operating rooms and other medi institutions under the direction of a physician.

REPORTS OF OFFICERS

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The secretary respectfully submits the following annual report:

Membership

The table showing the number of members of the American Medical Association by states and territories which it is customary to present in the Secretary's report has not been prepared. It has been thought better to wait until next year when it will be possible to submit a more accurate and informative listing.

As of Oct. 1, 1951, there were 107,345 members of the American Medical Association who had paid their 1951 membership dues. In addition to this number, there were many more who were exempt from payment of dues but who were still carried as members, such as disabled physicians, residents and physicians temporarily absent on active service in the Armed Forces. There are approximately 7,500 Service Fellows, who have direct Fellowship and do not pay dues as members. The exact count of members will be made just prior to December 1, so as to supply all secretaries of constituent associations with the number of members on which the apportionment of delegates from their associations for 1952 will be made.

The Membership and Subscription Department has been functioning for many years under a system that was rather antiquated but worked well until 1950. With the complete change by which dues were levied on members, this system has proven inadequate. The Executive Committee of the Board of Trustees recently authorized a survey of this department by a management engineering firm. This company made a very careful analysis and report and recommended the installation of International Business Machines to facilitate the work of the department. The plan was accepted, and the department is now undergoing a complete reorganization. It is expected that by the first of the year the reorganization will have progressed to such a point that the keeping of the Association's membership records will be more efficient and up to date.

Field Activity

There have been many demands during the past year on the Secretary and the Assistant Secretary to appear at medical meetings throughout the country. The demands for these personal appearances seem to be increasing from year to year. In addition, liaison with numerous other national medical societies makes more and more demands on the executives of the headquarters staff, so that travel has increased to an appreciable extent.

Resolutions to Be Presented to the House of Delegates

The Secretary has received the following resolution, which is to be presented to the House of Delegates by delegates of the Ohio State Medical Association:

RESOLUTION ON PLACE OF INTERIM SESSIONS OF HOUSE OF DELEGATES

Whereas, It has been customary for the House of Delegates to hold its interim session during the Clinical Session of the American Medical Association; and

Whereas, This has required excessive travel on the part of many delegates who seldom have time to attend the Clinical Sessions; and

Whereas, This requires travel on the part of many members of the staff of the Chicago office of the American Medical Association to some distant city and the shipment of many records and supplies from Chicago, entailing considerable expense to the Association; therefore be it

Resolved, That interim sessions of the House of Delegates be held in Chicago in December each year, and that this change become effective in 1953.

The following resolution, which also will be submitted to the House of Delegates at the Los Angeles Session has been received from the Medical Society of the State of North Carolina:

RESOLUTION ON NEGRO PHYSICIANS IN NORTH CAROLINA

Whereas, The members of the Medical Society of the State of North Carolina are anxious to maintain the cordial relations existing between the white and Negro physicians in North Carolina; and

Whereas, They recognize the advantages to the Negro physicians of membership in the American Medical Association; and

Whereas, At present it is not feasible, because of limits of space in the hotels of North Carolina, and also because of existing custom, to attempt to have joint meetings of both groups; and

Whereas, The Old North State Medical Society, which for fifty-three years has been the state organization of Negro physicians, has asked to be admitted "as a constituent association of the American Medical Association"; and

Whereas, The House of Delegates of the Medical Society of the State of North Carolina, at its annual meeting in May 1951, voted to approve this request and sponsor the Old North State Medical Society as a constituent of the American Medical Association; therefore be it

Resolved, That the House of Delegates of the American Medical Association approve the recognition of the Old North State Medical Society as an affiliate of the Medical Society of the State of North Carolina, and also of the American Medical Association.

The Secretary has also received a resolution to be introduced by a delegate of the Oregon State Medical Society, as follows:

RESOLUTION ON APPROVAL OF INTERNSHIPS

Whereas, Interns should be appointed to hospitals that have adequate facilities and organization for carrying on this type of training; and

Whereas, The number of internships should be limited to approximately the number of medical students graduating and applying for such positions, leaving some excess for fair competition between hospitals; and

Whereas, The quota of interns assigned to a hospital should be based on an up to date survey of the facilities for adequate intern training offered by the hospital; therefore be it

Resolved, That any future plan for the approval of internships adopted by the Council on Medical Education and Hospitals shall conform to these principles.

Appreciation

The Secretary desires again to offer an expression of his sincere appreciation for the assistance and many courtesies he has received from the officers and members of official bodies of the American Medical Association, as well as from many officers and members of the constituent and component medical societies. The personnel at Association headquarters, numbering 838, are deserving of praise for loyal and efficient contributions to the administration of the Association's affairs.

Respectfully submitted,

GEORGE F. LULL, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Board of Trustees is respectfully submitted:

Report on Matters Referred by House of Delegates

Resolution on Income Tax Exemption.—In accordance with the action taken by the Board of Trustees, as reported to the House of Delegates in June 1951, on the Resolution on Income Tax Exemption introduced by Dr. J. Wallace Hurff, New Jersey, in June 1950, preliminary steps are being taken to initiate within the Bureau of Internal Revenue the procedures necessary for a review of the 1921 ruling which denies deductions to physicians for expenses incurred in taking postgraduate courses. The report of the Bureau of Legal Medicine and Legislation contains an item on this subject. Further reports will be made from time to time as new developments occur.

Resolution on Free Choice of Physicians for Federal Employees.—The Board referred back to the Council on Industrial Health the resolution introduced by Dr. J. Stanley Kenney, New York, in June 1949. A report has been received to the effect that a meeting was held on October 17 between representatives of the Council on Industrial Health and Dr. Kenney, at which it was announced that he would submit an official statement on the subject. This statement, when received, will be presented to the House of Delegates.

Retirement Benefits and Pension Plans.—Three separate resolutions having to do with retirement benefits and pension plans for professional persons were submitted to the House of Delegates in June 1951 by Drs. W. D. Stovall, Wisconsin, W. H. Huron, Michigan, and W. P. Anderton, New York. The Board strongly supported the Ives amendment to H. R. 4473, 82d Congress, which would authorize the tax free diversion of certain sums each year by physicians, among others, for the purpose of purchasing retirement and other benefits. However, the Ives amendment was not adopted by this session of Congress. It is possible that some plan comparable to the amendment will come up for consideration again in the second session of the 82d Congress, in which event the Association will again vigorously support it. The report of the Bureau of Legal Medicine and Legislation contains a statement on this matter.

Resolutions on Publicizing American Medicine.—These resolutions presented by Dr. Edward P. Flood, New York, in June 1951 were referred to the Department of Public Relations for implementation. The Department expects to have a report on the subject matter in the near future.

Resolution on Stamps of Approval for Iodized Salt Packages.—This resolution introduced by Dr. William A. Hyland, Michigan, was referred to the Council on Foods and Nutrition, which has reported that at the present time fifteen different brands of iodized salt have been accepted and have been accorded the seal of acceptance of the Council.

Resolution on Distribution of Medical Care.—The Board of Trustees referred to the Committee to Study the Twelve Point Program the resolution introduced in June 1951 by Dr. William F. Costello, New Jersey. The Committee held a meeting on October 27 in New York at which this resolution was discussed, and a report will be submitted to the House of Delegates at the Los Angeles Session.

Resolution on Costs of all Technical and Professional Training.—The resolution introduced by Dr. E. F. Hoffman, California, was referred by the Board to the Council on Medical Education and Hospitals and the Bureau of Legal Medicine and Legislation for study and report.

Resolutions on Medical Relations in Workmen's Compensation.—The Board referred to the Council on Industrial Health the report of the Reference Committee on Industrial Health with respect to the report of the Council on the Resolutions on Medical Relations in Workmen's Compensation, adopted by the House of Delegates in June 1950. The Board requested the Council to submit another report when complete returns are available from the persons contacted with respect to this matter. Final action by the Board will be held in abeyance until a final report is forthcoming.

Membership, Fellowship and Dues

There was much discussion of the meeting of the House of Delegates in June relative to the continuation of the classification of Fellowship and of the levying of Fellowship dues. This matter was referred to the Board of Trustees. In addition, the Committee on Constitution and By-Laws has given careful consideration to this subject and will present a report to the House. The Board of Trustees recommends that there be only one class of membership and, consequently, also recommends that for the year 1952 no Fellowship dues be charged. The Board wishes to call the attention of the House of Delegates to the fact that by doing away with Fellowship dues, the Association will lose approximately $350,000 of income.

Public Relations

The recommendation from the House of Delegates that continued efforts be made to increase the interest, education and participation of physicians in public relations has received the careful consideration of the Board of Trustees. Every effort is being expended to implement this recommendation of the House. It is hoped that those delegates who find it possible will attend the meetings on medical public relations held immediately before the Clinical Session convenes.

Expression of Appreciation to Woman's Auxiliary

The Board of Trustees wishes to express its deep appreciati of the many fine programs being conducted by the Woman Auxiliary to the American Medical Association and by t woman's auxiliaries to the constituent associations. The projec undertaken by the Auxiliary vary from one state to another r flecting local interests and needs, but in almost every instan these projects are conducted with enthusiasm and effectivene They include nurse recruitment drives, promotion of *Toda Health,* participation in the programs of other organizatio distribution of health education material, civil defense and ma other activities. Their role in getting out the vote in 1950 a publicizing the issues cannot be given sufficient credit. In ma states it was the persistent efforts of the Woman's Auxiliary th produced such favorable results.

The Board of Trustees calls attention of the House of De gates to these many desirable activities of the national and co stituent woman's auxiliaries because of the urgent need for su port and guidance of these activities by sympathetic medi societies. The representatives of the auxiliaries have repeate asserted that the quality of their programs reflects the inter of the medical society concerned, and that lack of support fro the medical society results in no program at all or activit that are inadvisable.

The year 1952 is a key year in the history of medicine. It *highly important that medicine utilize to the fullest all of* resources. One of the most potent of these is the medical socie auxiliary. The Board urges strongly that medical societies gi *full support and constructive advice to the auxiliaries so th* they can carry out their responsibilities with the utmost efficien

The Board of Trustees requests the House of Delegates *support the sense of this statement, and to authorize its dist* bution to the constituent and component societies as the reflecti of the attitude of both the Board of Trustees and the House Delegates.

Narcotic Addiction

Because of the increasing need for an evaluation of the pro lem of narcotic addiction, especially among school children, Board of Trustees has requested the Council on Pharmacy a Chemistry to secure as much information as possible on t subject and has authorized the Secretary and General Mana to contact the Federal Bureau of Narcotics for any suggesti as to how the American Medical Association can assist in solution of this problem.

In addition, a committee will be appointed by the Board *Trustees to study the entire matter.*

Joint Commission for the Accreditation of Hospitals

In September, 1950, the American Hospital Association to action to establish a hospital standardization program in organization of which the medical profession was to have b represented by a committee of six, three to have been appoin by the American College of Physicians and three by the Ame can College of Surgeons. As reported to the House of Delega in June, 1951, the Board of Trustees, recognizing that such program would be of direct concern to the entire medical p fession, took steps to bring to the attention of the Ameri Hospital Association its vital interest in the matter and reques that action implementing the program be deferred.

There followed a series of meetings between representati of the American Medical Association, the American Hosp Association, the American College of Surgeons and the Am can College of Physicians, as a result of which a Joint Comm sion for the Accreditation of Hospitals was recommended. House of Delegates at the June *meeting* approved the act of the Board of Trustees and authorized it to continue neg ations to the end that such a commission be established. A subsequent *meeting* of representatives of the four organizatio the representatives of the American Medical Association, act on instruction from the House of Delegates, requested a chan in the Commission so as to give the American Medical As ciation a proportionately greater representation. The other me bers of the committee, however, expressed the view *that* number of representatives from the American Medical Asso ation and that from the American Hospital Association should equal, particularly since the other members of the *Commissi* would be appointed by two other professional organizations, merican College of Physicians and the American College of urgeons. Further, the latter two organizations had approved he establishment of the Joint Commission on the basis of the greement previously reached that the Commission would be omposed of six representatives appointed by the American Medical Association, six by the American Hospital Association nd three each by the two colleges. This plan has now been pproved by all four participating organizations, and steps will e taken to put it into effect in the near future.

The Joint Commission will be the final authority for the ccreditation of hospitals, carrying out the standardization proram previously sponsored by the American College of Sureons. The functions of the Commission will be: (1) to formuate standards relating to hospital accreditation; (2) to establish he type and scope of inspections to be made under this proram; (3) to assign responsibility for hospital inspections to the everal participating organizations; and (4) to award certificates f accreditation to qualifying hospitals. Inspections for purposes f hospital accreditation will be made and reported in a uniform nanner by staff representatives of the participating organizaions with the reports to be evaluated and acted on by the Comnission itself. Inspections will be related primarily to the rofessional and administrative aspects of the hospital. They vill not be concerned directly with the hospital's teaching proram. Hospital surveys relating to internship and residency trainng will continue to be carried out by the organizations which ave conducted these programs in the past. The operating exenses of the Commission will be paid by the constituent oranizations on a basis proportionate to their representation on he Commission. The budget for the first year of operation has een tentatively set at $70,000. This amount does not include he costs of the hospital inspection service, which will be the esponsibility of the individual organizations.

It is anticipated that the Association's role in the accreditaion program will be administered through the Council on Medial Education and Hospitals. Additional funds to carry out the rogram will be required depending largely on the extent of esponsibility for hospital inspections which the Council will ssume.

"You and Your A. M. A.," Program

The Council on Medical Service proposed to the Board of rustees that a program having the above title, together with an xhibit, be sent to these state medical associations which desired . The program would consist of some of the officials of the merican Medical Association appearing on a panel with a epresentative of the state association concerned, the panel to be ollowed by a question and answer period. A pilot program was uthorized for the constituent medical associations in four states, ennsylvania, Colorado, Virginia and Indiana. The programs iffer somewhat but in the main the basic features in all are imilar.

These pilot programs were received with such success that it vas thought best to put them on in some other states that had equested them. Consequently it was decided by the Board of rustees in view of the general nature of these programs in vhich all American Medical Association activities are presented, o adopt the following policy:

> The development of any programs designed to inform the medical proession or the public of the over-all activities of the American Medical ssociation is a responsibility of the Board of Trustees and will be carried ut through the Secretary and General Manager. Suitable arrangements hall be made by the Secretary and General Manager to secure participaion by all councils, committees, and departments to assure that their pecific programs are properly and adequately presented to both the proession and the public.

The Journal

Following the action of the House of Delegates by which ubscription to THE JOURNAL was included in the annual dues f members of the Association, the circulation of THE JOURNAL ncreased by many thousands. There are now being printed each veek more than 168,000 copies. Interest in subscriptions, in ddition to those provided for members, is continuing to increase, so that each week there is an addition of as many as our or five hundred names to the mailing list of THE JOURNAL. Study is still being made of possibilities of increasing the foreign irculation, but implementation of the most effective plan has ot been made because of the need for additional study of some f the problems, for example, exchange of foreign currencies.

The recommendations developed from the survey of THE JOURNAL which were reported to the House of Delegates at the Cleveland Session in December, 1950, have practically been completed, although it is planned to continue obtaining from the medical profession expressions of opinion concerning the usefulness and general acceptability of the various sections of THE JOURNAL. The costs involved in preparation and printing are increasing, as are other costs, which raises a factor that must be taken into consideration as each issue is prepared. However, in spite of this problem, it is hoped that from time to time the usefulness of THE JOURNAL will be extended as additional needs are demonstrated.

As the names of thousands of members were added to THE JOURNAL mailing list during 1951, there was seen occasionally evidence of failure to supply THE JOURNAL to qualified members as required under the By-Laws of the Association. This was due in part, unfortunately, to the personnel in the Subscription Department being suddenly faced with an unusually large problem. It is believed that by now most of the work associated with the transferring of names is completed and there should be a minimum of cause for complaint because of failure of a member to receive THE JOURNAL.

An increasing amount of Organization material is appearing in THE JOURNAL. It is the hope of the staff of the Editorial Department of THE JOURNAL to use this medium of drawing more attention to the activities of the various councils, bureaus, and committees of the American Medical Association, so that their work may become better known and the information in their files more widely used.

The number of physicians making use of the Queries and Minor Notes department of THE JOURNAL has greatly increased. The increase of inquiries received in 1950 over 1949 was 50%, and the increase in 1951 over 1950 is 15%. No record is kept of the number of telephone inquires received, many of which, however, are answered by mail. Many inquiries can be answered from material in the files of this department. In other instances it is necessary to refer the inquiries to consultants, whose replies are transmitted to the inquiring physician. Some of the questions and answers thus obtained are prepared for publication in THE JOURNAL so that other users of THE JOURNAL can share this information. Of related interest is the sale of Volume III of "Selected Questions and Answers," the body of which is made up of Queries and Minor Notes that have been published in THE JOURNAL in recent years. So far approximately 2,400 copies of this volume have been sold.

The Medical Literature Abstracts department prepares abstracts from medical literature for this section of THE JOURNAL, a section that is very popular with JOURNAL readers. Abstracts of both domestic and foreign medical articles are published. In addition, the Medical Literature Abstracts department prepares abstracts for the *A. M. A. Archives of Industrial Hygiene and Occupational Medicine.* Members of this department also translate letters from some of THE JOURNAL's foreign correspondents and letters in foreign languages that are addressed to other officers of the Association. The Medical and Surgical Newsletters which are distributed by the Department of State in numerous foreign countries are prepared by this department. The latter service, according to available reports, is well received in foreign countries.

The Medical News section of THE JOURNAL indicates a sustained high level of interest during 1951. For the first nine months of this year, in addition to other items the pages carried announcements and programs of 270 society meetings. This is exclusive of information on programs for hospital seminars, medical lectures, and postgraduate courses. Most winter meetings have not been recorded at the time of preparation of this report. During the winter and early spring months of 1951 it was necessary to select and edit news items very carefully to make the best use of available space in THE JOURNAL. A list of international meetings, their dates and general secretaries was added to THE JOURNAL pages last spring. This feature has become increasingly popular. The death pages have recorded an unusually large number of obituaries of prominent physicians, and notices of 10 deaths of physicians in the armed forces have been published.

Special Journals

During the past year a total of 2,072 scientific articles, case reports, and clinical notes were submitted to the special journals. Of this number 1,564 articles were published and 508 rejected. Of the total number of articles submitted 157 were originally submitted to The Journal of the American Medical Association and later referred to one of the nine special journals.

The annual meeting of the chief editors was held on May 12, 1951, at Association headquarters. At this time material relating to financial status, circulation, advertising, published material and editing style was introduced and discussed by the editors present. Circulation figures for all of the special journals during 1951 compare well with 1950 figures. A slight increase occurred with eight of the journals and a moderate drop in one. A program for increasing circulation of all the journals was recommended and undertaken following the chief editors' meeting of 1950. The campaign for increasing circulation of *A. M. A. Archives of Surgery* through 16,000 advertising letters resulted in the obtaining of approximately 600 new subscriptions. Similar campaigns have been undertaken for *A. M. A. Archives of Internal Medicine* and *A. M. A. American Journal of Diseases of Children* and will be carried out eventually for all the other special journals. A program for increasing advertising income has been under way during 1951. A report from the advertising department indicates that the future of the special journals looks much brighter than it has since 1948. During the first five months of 1951, total income from advertising of all the special journals showed an increase of approximately 20% beyond comparable figures for 1950. It is expected that increased income from circulation and advertising will eventually absorb the present operating deficit.

During 1951, for the benefit of both the subscriber and the author, a firm schedule of publication of all accepted articles in a period of four months or less, has been maintained.

Several changes in physical structure have been made during the past year. These have included newer methods of binding which speed up production and lower production cost, and the enlargement of the printed area of the page which has cut down somewhat on the thickness of the individual numbers without reducing content. The volume index is again included with the June and December number of each volume. This procedure was restored because of mailing difficulties and increased costs of separate mailing of indices.

The special journals have adopted new editorial style changes which are in line with the changes in Journal editorial policy. In the future, style books will be used merely as guides and the author's style will be given preference as long as basic rules of grammatical construction are justified.

During this year progressive changes in several of the journals have included establishment of a new department of editorials in *A. M. A. Archives of Surgery,* a new department of annual reviews and registry of interesting cases in *A. M. A. Archives of Ophthalmology,* a case report section in *A. M. A. Archives of Internal Medicine,* and a section of threshold limit values in *A. M. A. Archives of Industrial Hygiene and Occupational Medicine.* Some increased emphasis has been given to psychiatric papers in *A. M. A. Archives of Neurology and Psychiatry.*

Today's Health

The period covered in this report is from Sept. 1, 1950, through Aug. 31, 1951, and corresponds roughly with the second year of service of the present editor. Progress with relation to the items mentioned in the report for the preceding year are as follows:

The Eastman Research Organization, retained as advisors to the editor by authority of the Board of Trustees proved of definite value in crystalizing and stabilizing the policies of the magazine.

The circulation of *Today's Health* is now frozen (June 5, 1951) at a maximum of 235,000 copies monthly by paper restrictions. Ironically, at this very time, renewal percentages are increasing and it has been necessary for several months to hold over renewals and new orders to the subsequent month to wait for expirations because of inability to put them into effect at once due to the paper shortage.

The change of name from *Hygeia* to *Today's Health* has met with substantial approval, the exception being mainly the professional, the better educated and more intellectual subscribers and the subscribers of long standing who have become attached by habit to the name *Hygeia.*

Advertising revenue for *Today's Health* is slowly but steadi improving and the merchandising plan seems to be beginning show results. It is too early as yet to make any final statemen along this line.

The general financial position of the magazine seems to slowly improving. It is not yet possible to predict what the ope ating expense above revenue will be for 1951, but projectio available at this time would indicate that it will be somewhe between $100,000 and $125,000 as compared with an adjust operating expense above revenue of $202,000 for 1950.

It is certain that the status of *Today's Health* as an education tool through its presence in libraries and schools, in the offices physicians and dentists and its use by health departments a health agencies establishes it as a factor in the national picture health education which cannot be ignored. It is significant that competition has sprung up other than a few digest magazin which are quite different in character and the denomination magazine of the Seven Day Adventists which was establish many years ago. That very fact is in itself evidence that *Toda Health* fills a real need and fills it adequately.

CIRCULATION

The circulation of *Today's Health* during the first six mont of 1951 showed a slight increase over the preceding six mont period. The average net paid circulation per month from Januar through June, 1951, was 221,284 copies, as compared with a average of 219,965 copies per month from July through Dece ber, 1950.

Because there was not sufficient increase in the number of su scribers renewing subscriptions on expiration of the original ter it was necessary to add through direct mail solicitation and agen promotions 76,467 new subscribers in order to maintain the cu tomary monthly average circulation of about 220,000 copies.

Most of the new subscribers to *Today's Health* accepted t special introductory offer of a reduced rate for a trial period six or eight months. However, about 25 per cent of the new ord were received through the efforts of subscription agents and oth organizations, a third of these having been obtained through t work of the Woman's Auxiliary to the American Medical Asso ation. The Auxiliary has been instrumental in promoting the u of *Today's Health* as an integral part of the public relations pr gram of state medical societies, and, in a number of states, cop of the magazine are sent each month to the state and federal leg lators as well as to members of the judiciary and boards of educ tion. For the use of the Woman's Auxiliary, special portab exhibits on *Today's Health* have been created for display annual meetings, state fairs and other large gatherings. Since t first of the year, these exhibits have been used at 30 meeting attracting an audience estimated at more than 25,000 persons.

During the past school year, *Today's Health* has been used a supplementary text book in about 70 high schools and colleg throughout the country. In these schools copies were supplied a pecial bulk rate for quantity orders, so that each pupil could ha a copy of the magazine for his own use. To facilitate classroo discussion of the material, the teachers of these classes receiv each month a list of questions and answers based on articles the issue.

Through exhibits at national conventions throughout the yea *Today's Health* has been introduced to the leaders of vario professional groups. Sample copies of the magazine have be distributed in the last twelve months at the annual and inter sessions of the American Medical Association and at the annu meetings of the American Public Health Association, America Dental Association, National Education Association, America Association of Health, Physical Education and Recreatio American College Health Association, and the American Librar Association.

The number of physicians who subscribe to *Today's Health* ha remained disappointingly constant for the past several years Although only about 15 per cent of the practicing physicians i the United States subscribe to *Today's Health,* a survey mad some time ago indicated that more than 2,000,000 patients rea the magazine each month in their doctor's reception room. If a substantial increase in the number of physician subscribers could be achieved, the magazine would be available to patients in many more waiting rooms, thus providing a greatly augmented circle of readers who are vitally interested in the maintenance of good health.

Standard Nomenclature of Diseases and Operations

The 22 committees for the fourth revision of the Standard Nomenclature of Diseases and Operations have completed their work. Editing process is finished and the publication will be available to hospitals on Jan. 2, 1952.

Major changes in the fourth edition are as follows:

1. The title of the third edition, Standard Nomenclature of Disease and Standard Nomenclature of Operations, is now combined as Standard Nomenclature of Diseases and Operations.

2. In order to establish a correlation between "Standard" diagnoses and equivalents of the International Statistical Classification of Diseases, Injuries and Causes of Death, the International equivalents are included parenthetically in the body of the book and an appendix supplied by which code numbers of "Standard" and the "International List" may be properly cross referenced.

3. The Supplementary Terms lists which were previously distributed throughout the several sections in the body of the book are now grouped.

4. The section on Eponyms which appeared in the third edition is now combined with the general index.

5. The Disease index and the Operations index are placed consecutively. Both now appear at the back of the book immediately following the Nomenclature of Operations.

6. Page size has been enlarged to accommodate the increased amount of material without materially augmenting the thickness of the volume.

7. The index is completely revised and direct page references are given to specific entities.

Scientific knowledge of recent years has required many changes in the scientific material presented. In this revision, changes have included a complete revision of the Psychobiologic Unit, the section on Diseases of the Hemic and Lymphatic Systems and the etiologic section on Tumor terminology. Revisions of these sections represent a work of close collaboration between the Standard Nomenclature committees and editors with nomenclature committees of the various national organizations concerned.

The third revision was reviewed thoroughly and approximately 5,800 changes were made which represent additions, deletions or consistency changes. In addition to the work on revision of the Nomenclature, approximately 2,500 queries relative to nomenclature problems have been received and answered during the past year.

In January and June, 1951 standard nomenclature was taught at five day institutes for medical record librarians sponsored jointly by the American Hospital Association and the American Association of Medical Record Librarians. Standard nomenclature classes were also conducted by Mrs. Adaline C. Hayden, Associate Editor of Standard Nomenclature of Diseases and Operations, at meetings in Kentucky, Indiana, Iowa, Mississippi, and Wisconsin.

It is expected that plans for a fifth revision and methods for proper handling of interval nomenclature problems will be considered immediately after release of the fourth edition.

American Medical Directory

The Eighteenth Edition of the American Medical Directory was completed in May, 1950. On previous editions, the average total sale was about 8,000 copies; on the 1950 edition more than 18,500 copies have been sold, and by the time the 1952 edition is available the supply of the 1950 edition no doubt will have been exhausted.

The increase in the volume of sale is attributed to the fact that eight years elapsed between the publication of the Seventeenth, 1942, and the Eighteenth, 1950, edition. During this interval there was also an unprecedented shifting of physician population because of war conditions, stimulating the desire for an up to date directory of physicians. A more normal demand for the 1952 edition is anticipated, and the tentative press run of 10,000 copies will probably satisfy the demand for this edition. A comparison of the sale of the last two editions, indicates the following distribution of copies:

Type of Subscriber	Eighteenth Edition (1950) %	Seventeenth Edition (1942) %
Physicians	54	36
Hospitals, Clinics	18	22
Commercial Organizations	12	18
Insurance Companies	3	6
Libraries	2	2
Federal Agencies	2	4
Medical Schools	2	3
Miscellaneous	7	9
	100%	100%

Although the 1950 edition will be a sell-out, the income derived from the sale of copies will not be sufficient to cover the cost of publication. Income from the Directory Report Service, a supplementary service furnished semimonthly on a subscription and service-fee basis to large mailers of circular material, has helped to defray some of the expense of maintaining the records of the Directory Department. However, because of the demands made on the Department for information concerning physicians, demands made by practically every Council, Bureau, and Department of the Association as well as by other official bodies, commercial and philanthropic organizations, government agencies, and the general public, the income received for the Department's publications cannot cover the costs of operation, especially in view of the increasing cost of clerical help, postage and printing services. It is conservatively estimated that, during an average year, the information section of the Directory Department handles more than 15,000 telephone inquiries and at least 5,200 mail inquiries concerning physicians. In addition approximately 7,000 membership applications are checked annually for the Secretary's Office; in the past nine-month period, license applications for 3,576 physicians have been processed for the Council on Medical Education and Hospitals and 1,029 applications have been checked for five of the examining boards in a medical specialty. The Department routinely verifies data on authors, participants in meetings and conferences, potential advertisers and correspondents for various headquarters' activities.

As is customary after a Directory is printed, the type from the 1950 edition has been saved and, at the end of 1950 and through the first half of 1951, information on the various changes made in the Directory records has been sent to the printer so that necessary revisions and editions could be made in the standing type.

As of Oct. 1, 1951, biographic information on 15,840 new physicians has been added to the Directory records and 82,099 changes of address have been recorded. Of this number, 28,349 were local changes and 48,757 were changes from one city to another. Because of death, 7,035 names of physicians have been deleted.

It had been originally planned to issue the Nineteenth Edition of the Directory in the spring of 1952. The edition has been delayed, however, because of the necessity of correlating the records of the Directory Department with those of the Membership Department concerning the current membership status of physicians as indicated by the reports of the various state medical associations. However, it is hoped that a new Directory will be published and ready for sale late in the fall of 1952.

Library

Work on reorganization of the book collection of the Library has progressed this year. Every item with a publication date prior to 1940 was evaluated in relation to its usefulness to the Library and the headquarters staff. As a result a large number of books were withdrawn as unsuitable for the purpose of maintaining an up-to-date and workable collection. This material was offered to various departments and individuals in the American Medical Association building and then to other libraries. After this elimination of books was completed, the remaining publications were organized into a more logical and convenient arrangement. Recataloging of the entire collection is in progress at present, and rebinding and acquisition of literature in certain fields are in prospect.

The reference service continues to be in demand. The number of package libraries requested showed an increase of about 100 over last year bringing the total to almost 2,150. New borrowers, including members of the Student American Medical Association, frequently asked for this service. Material on cortisone and adrenocorticotropic hormone was in constant demand. Blocking of the stellate ganglion proved a topic of special interest, but as usual the bulk of the requests dealt with such subjects as cardiovascular diseases, gastrointestinal conditions, pregnancy, tumors, diabetes mellitus, multiple sclerosis, the kidney and the liver. The Periodical Lending Service circulated approximately 12,000 journals.

During the year a number of borrowers came in person to consult the files, among them visiting doctors from all parts of the world. Most of the work, however, is handled by letter and by telephone. It is estimated that at least twenty inquiries are answered each day, in addition to the inquiries for package library service. Many of these requests entail a long search which taxes all of the resources of the library.

Indexes to the three current volumes of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION were compiled in the Library as usual. For almost thirty years a cumulated file of cards from these indexes has been maintained. It was decided to close this file with the year 1950, and start a new cumulation which will make the recent material more accessible.

During the year card files of periodicals, arranged by country and by subject respectively, have been organized to aid in answering frequent inquiries. Under the direction of the Editor of THE JOURNAL, a complete survey of all exchanges with THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was made, and an information file on national medical societies throughout the world and their publications is in preparation.

Quarterly Cumulative Index Medicus

Two volumes of the Quarterly Cumulative Index Medicus have been issued this year: Vol. 46 (July-December 1949) was completed in February, and Vol. 47 (January-June 1950) appeared at the end of August. The new format used in the former caused a number of favorable comments especially regarding legibility; and the slight reduction in size of print for Vol. 47 to reduce the bulk of the book has not affected this feature oticeably.

This latest volume listed 32,171 articles, an increase of 4,605 over volume 46. Approximately one half of these were from foreign language periodicals with about 5,000 in German and 3,900 in French. Italian and Spanish journals accounted for more than 2,300 articles each.

The final processing of copy for Vol. 48 (July-December 1950) is completed, and most of the material has been typed. This issue should be mailed to subscribers early in 1952. Practically all of the cards for the next volume are in file. All English language periodicals are processed currently as soon as they come in, and many foreign language publications receive prompt handling. The card files covering unpublished material are in constant use for reference work both by the Library staff and by visitors to whom they are made available.

Unfortunately this year has brought little improvement in the production schedule of the Index. Every effort has been made to recruit personnel with training and experience in this field without success, so a long period of on-the-job training still continues to handicap the work. However, some gains have been made during the year, and a constant search for likely candidates is maintained.

Report of the State Journal Advertising Bureau

The State Journal Advertising Bureau, formerly known as the Cooperative Medical Advertising Bureau, continues to assist its present membership of 34 state medical journals, representing 39 constituent medical associations, in securing advertising space sales and in servicing accounts by handling most of the details for the convenience of the journal offices.

Through its monthly bulletin, the Bureau offers helpful suggestions as well as current listings of products accepted by the Councils on Pharmacy and Chemistry, Physical Medicine and Rehabilitation and Foods and Nutrition and the Committee on Cosmetics. Acceptance of many products opens up an avenue of further prospects for the journals, all of which follow standards of advertising adopted for the publications of the American Medical Association. It is therefore hoped to maintain present sales in subsequent years and even to increase them. During the past six years, 1946 through 1951, the net sales have exceede $3,639,000.00 representing gross sales exceeding $4,000,000.0 or an average of $666,666.00 per year. For 1951 alone, the gros sales exceed $724,000.00.

The Bureau, operating under the auspices of the Board Trustees of the American Medical Association, functions in be half of the State Journal Group, and all revenue is transmitte to the member journals, less operational costs which amount approximately six per cent. The Bureau is governed by the A visory Committee, which is composed of Drs. Stanley B. Wel Connecticut, Chairman; Julian P. Price, South Carolina; Ca B. Drake, Minnesota; Walter E. Vest, West Virginia, and Fernald Foster, Michigan. Ex officio members of the Adviso Committee are Drs. George F. Lull, Austin Smith and Robert Stormont and Mr. Alfred J. Jackson, Director of the Burea

Council on Rural Health

Believing that it would assist the Committee on Rural Heal in its relations with organizations concerned with rural matte the Board of Trustees has decided to change the status of t Committee to that of a Council of the Board of Trustees. Th action of the Board was taken after the annual report of t Committee on Rural Health was prepared, for which reason th Committee's new status is not mentioned therein.

Report of the Committee on Rural Health

The annual Conference on Rural Health, held annually f the past six years, have served to mould public opinion a crystallize thinking about rural health problems. Each succee ing conference has brought the problem nearer solution. T association of rural citizens, physicians, professional heal workers, extension services of Land-Grant colleges, and edit of agricultural journals has brought to the study a cross-secti of rural and professional leaders not obtainable elsewhe Mutual confidence has grown with the passing years, floweri into a set of objectives useful in state and community hea planning.

There are many groups and agencies interested, and w limited programs, in community health, such as tuberculo poliomyelitis, and cancer. Much that the Agricultural Extensi Service of the Land-Grant Colleges do pertains to health direc or indirectly. In a number of states and in many communit these programs are being brought together by the local lead as a result of their attendance at the national rural health c ferences. The ideal would be to bring all these groups toget into an organization often referred to as a health council, wh affords an opportunity for each to learn what the other is doi and how each can complement the other.

It is often found advisable that at the beginning only a f of these groups be brought together. As they have beco accustomed to working together and obtaining a full und standing of what their respective functions are, they can fr time to time bring in additional groups.

In this connection it is urged that the medical professi come in at the very beginning of such an effort. In many groups during the last fifteen months, it has been urged that steps be taken to begin a council until at least one physician become sufficiently interested to give it attention, guidance a leadership. This recommendation imposes a serious respon bility on physicians. They must be willing to participate active Their passive blessing alone is not enough. While it is necessary that doctors take the initiative or be in the forefro initiative on their part is desirable. Above all else, their acti participation is imperative if sound medical principles are to followed.

Because rural people have generally felt that ther chief heal problem is getting a doctor in the village, it is necessary emphasize the fact that this is only one of several problems th have; it is not necessarily the most important one.

To understand the problem of rural health, attention must called to the difference between health and medical care. Heal is a personal and community responsibility, entirely separate an apart from medical care. If the individual does not understan or neglects his responsibility in this respect, it will be impossib to have enough doctors, nurses or hospitals to assure good health. It is the individual who must see to it that his family is provided proper diets, live in sanitary and safe surroundings, and utilizes the skill of physicians in immunizing themselves against the preventable diseases. In a free enterprise society the physician is helpless unless the public is educated to these facts. The task of educating people is a long process and should be so recognized by all who are interested in the problem.

The local health council affords the best channel to teach alth rules to the citizen. Therefore, it is essential that the ctors come in at the beginning of council organization and sist the lay groups in developing the kinds of educational ograms that will help them to understand their personal and mmunity responsibility in health and its relationship to good edical care. It is recommended that the American Medical ssociation set up a long time program in this field. The pro- am should be broad and flexible to fit any community and med at getting the cooperation of the organizations now work- g in rural educational work. The last fifteen months of work ave clearly shown that nearly all of these agencies and organi- itions are eager to do something, but that they have not clearly iderstood what they can or should do. They need a community earing house for activities.

Another challenging opportunity is for the lay groups and e medical profession to clarify in the minds of the rural lay iblic the difference between the cost of medical care and the ist of illness. A rural family which receives a bill for hospital id other services is inclined to charge the whole matter to the ctor. Since hospital costs are rising sharply, this is of grow- g importance. The cost of the service rendered by the doctor confused with the other costs incident to illness. Any ogram outlined by the American Medical Association should clude this phase of education. The whole field of prepayment surance should be emphasized along with careful study of the imber, size, and location of hospitals. Farm people are more fficult to reach with prepayment programs, because they do ot work in groups as factory or store employees. They are a eater burden to the insurance carrier because they have a eater backlog of untreated pathology, they do not carry in- istrial insurance for the large incidence of accidental injury, or are the workers screened for physical deficiencies at the ginning of employment. A higher premium rate is acceptable rural people when these factors are properly presented to em.

In the case of size, number, and location of hospitals, main- nance costs and overhead on these institutions needs to be iderstood. Costly mistakes have been made in some of the eas of the country, and this experience must be available in irther planning.

In all of the 33 states visited this past year, much good work going on, but in all of them, many problems exist.

It is suggested that consideration be given to the following ints:

1. That a long-time, flexible program be outlined by the ational Committee on Rural Health and be assured support by e American Medical Association.

2. That the national Committee's policy of holding annual iral health conferences be continued.

3. That local physicians and county medical societies take itiative and leadership in lay efforts to improve rural health.

4. That rural people and their institutions be helped to under- and the difference between health and medical care and the lationship of the two, and furthermore that they understand here the responsibilities for each rests.

5. That the factors of nutrition, environmental sanitation, and nmunization be fully appreciated as under-girding supports to good health program.

6. That the lay groups be helped in their understanding of a ommunity's relationship to the doctor. (In turn, his relationship nd responsibility to the community should be made clear at ome point in his training and development. Such things as how get a doctor, determining where one is needed and how to eep him are exceedingly important and are of mutual concern lay people and the medical profession.)

7. That rural people understand more of the cost and maintenance of hospitals. (The use of modern drugs, the antibiotics, early ambulation, improved roads and transportation and other factors must be taken into consideration, as well as the size of area or number of people to be served.)

8. That prepayment insurance programs for rural people be carefully studied and promoted.

9. That rural people be helped to understand the difference between the cost of medical care and the cost of illness.

Among the states holding rural health conferences are Arkansas, Idaho, Indiana, Michigan, Missouri, Montana, North Carolina, North Dakota, Ohio, Virginia, West Virginia, and Wisconsin.

In a few states new and active rural health committees have been formed and have followed precedence by including farmers and health educators, as well as physicians. State medical association rural health committees have cooperated with Farm Bureaus and their affiliate, the Associated Women, in active participation in the program of the Committee on Rural Health. This cooperation with the Grange is also true in some states. In Pennsylvania, Oregon, Washington, and Connecticut, new *state health councils of this type have been formed. Several* states have assembled rural health exhibits for display at state and county fairs, which have proved most successful.

Committee members have made personal contacts with agricultural extension personnel, farm organizations, medical societies, women's auxiliaries, civic organizations, and community groups throughout the country. This includes attendance at a number of state rural health conferences.

During the year approximately 29,000 pieces of literature have been sent out from the headquarters office.

As a result of these contacts, there is a better understanding and cooperation between all the organizations working in the rural health field. This should accelerate the solution of these problems and result in improved health, both urban and rural.

Report of the Washington Office

During the past year the relations of the Washington Office with members of Congress and representatives of the federal bureaus were definitely more intimate and more productive. Because Congress was concerned primarily with emergency legislation and major bills, not many occasions arose for participation of state medical society representatives in dealings with Congress.

The Eighty-Second Congress is still in its first session at this writing but is expected to adjourn in a few days. In January the same lawmakers will be back at the same desks with, generally the same ideas about medical legislation, and waiting for them will be the same bills resting at whatever point they happened to have reached in the legislative process.

GENERAL SERVICES

As in the past, the Washington Office continued to function as an information clearing house, serving Congress and the federal agencies as well as the Association's officers and members. Representatives of the Association testifying before Congressional committees were oriented and advised by the office staff prior to and during their appearance on Capitol Hill. Ten American Medical Association witnesses testified during the year, and the Association filed statements on several other occasions. Almost 8,000 copies of bills were mailed out to interested members, including the members of the Board of Trustees and others who had made inquiries. About 800 other government documents, including committee reports, were mailed on request. It is encouraging to know that more and more physicians are interested enough in what goes on in government to dig through these long documents. In addition many thousands of pieces of literature on the National Education Campaign were sent out in answer to inquiries. Contact was maintained with private associations and agencies to enlist support for the Association on legislation, and speakers were furnished for professional and lay groups.

The office maintained a close liaison with the military depart*ments, the Federal Security Agency, the Veterans Administra*tion and other federal departments to exchange ideas on pending legislation and to interpret correctly proposed and existing regulations. The same relationship was maintained with professional and nonprofessional organizations in the health fields. On request, individual Senators, Congressmen and others were supplied material for speeches, interviews, discussions and questions. This service was not restricted to supporters of the Association's policies.

PUBLICATIONS

During the past year Washington medical news took on special significance. The national emergency resulted in the creation of several new agencies and the expansion of established agencies and departments. Addition of another staff member allowed the Washington Office to keep track of these developments without neglecting its primary function of reporting on legislation.

Office publications are devoted to news reporting, not propaganda. Two publications are issued weekly, the *Bulletin,* devoted to reporting and analyzing legislation, and *Capitol Clinic,* which covers all other medical developments in Washington as well as legislative news not carried in the *Bulletin. Comments,* complementary to the *Bulletin,* is issued irregularly and furnishes special analyses of the more important bills, testimony given by American Medical Association witnesses and action of the Board of Trustees. Five Special Bulletins highlighted particular situations. These were on the National Cancer Institute, the United States Children's Bureau, federal financial participation in public health programs, presumption of service-connected disability by veterans and federal aid to medical education. In addition 20 or more shorter special reports were prepared and mailed out as part of *Capitol Clinic* or the *Bulletin.* Those carried in the *Bulletin* included a digest of the Humphrey subcommittee report on the Veterans Administration Medical Department, a study of legislation for tax relief of professional groups to facilitate purchase of retirement insurance, a breakdown of health items in Federal Security appropriations and a complete analysis of the law increasing pensions for veterans with non-service-connected disabilities. This special coverage in *Capitol Clinic* included a digest of the Dr. Dean Clark report to the Senate on voluntary health insurance, a complete report on Oscar Ewing's proposal for hospitalization at age 65, an analysis of the Surgeon General's Committee's report on federal research grants to medical schools and digests of progressive developments in doctor draft regulations.

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LEGISLATION

Every bill introduced in Congress is screened, and those with medical implications are followed in their step by step progress. So far in this Congress 183 bills were checked and reported to the profession. Most important of these provided for federal aid to medical, nursing and dental education, federal aid to local public health units, medical programs for veterans; investigation of voluntary health insurance; defense; housing and community facilities bill; including hospitals tax deductions for health insurance payments, proposals to give tax relief to professional groups for purchase of retirement insurance; universal military training and selective service amendments, and armed forces medical care. Following is the status, as of October 1, of legislation of primary concern to the medical profession:

Federal Aid to Medical and Nursing Education.—S. 337, awaiting action in the Senate, has been called numerous times on the unanimous consent calendar but has been passed over each time. In September the committee rewrote the payment schedule, reducing in amount the basic payments and greatly increasing incentive payments for new students. The changes are in the form of a committee amendment and will be considered when the bill is taken up. No hearings have been scheduled on a companion bill in the House. However, H. R. 910, for aid to nursing education only, was the subject of a House hearing.

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Report of Committee on Legislation

The Committee on Legislation, organzed in January, 1950, extended its activities during the period covered by this report, Oct. 1, 1950, to Sept. 30, 1951, in order to fulfill more effectively the purposes for which it was created. These purposes, as outlined at the first meeting of the Committee, are: (1) to streamline legislative action so as to get faster and more effective results in Washington; (2) to study and report on legislation introduced; (3) to maintain knowledge of the current status of and take suitable action on bills previously introduced; (4) to assure the dissemination of information to local and state medical societies with respect to current legislation and actions recommended; and (5) to recommend the names of physicians for the presentation of testimony to congressional committees.

During the period in question the Committee has had five meetings, has analyzed 129 legislative proposals, and has recommended policy positions on 110 of these proposals to the Board of Trustees.

It is apparent from the above figures that there has been an increasing number of bills introduced in the Congress which are of interest to and which affect the medical profession. The Committee, by virtue of frequent meetings, many hours of deliberation and the cooperation of the Washington Office and the Bureau of Legal Medicine and Legislation, has been able to formulate recommended positions on these measures and to determine which of the bills require the active support or opposition of the American Medical Association.

Following is a list of the bills on which either oral or written statements were presented, together with the names of the witnesses:

82D CONGRESS

S. 1, amended (War Manpower bill):

Statement of Dr. Stockton Kimball, Chairman, Joint Committee on Medical Education in Time of National Emergency—Jan. 30, 1951.

Testimony of Dr. George F. Lull on Section 23—Jan. 30, 1951.

S. 349 (H. R. 1272) (Defense Housing and Community Facilities and Services Act of 1951):

Statement of Dr. W. B. Martin before the Senate and House Committees on Bankng and Currency—Feb. 7, 1951.

S. 1328 (Survey of Sickness):

Written statement by American Medical Association to the Subcommittee on Health of the Senate Labor and Public Welfare Committee—Aug. 23, 1951.

H. R. 274 (Local Public Health Unit bill):

Statement submitted on behalf of the American Medical Association by Dr. Gunnar Gundersen to the Committee on Interstate and Foreign Commerce, House of Representatives—April 11, 1951.

H. R. 348 (Barbiturate bill):

Written statement by American Medical Association to the Committee on Ways and Means of the House of Representatives—April 12, 1951.

H. R. 910 (Nursing Education Act of 1951):

Statement of Dr. W. B. Martin on behalf of the American Medical Association before the Interstate and Foreign Commerce Committee of the House of Representatives —Sept. 13, 1951.

H. R. 3298 (S. 1186) (Drug bill):

Statement of Dr. W. B. Martin before a subcommittee of the Senate Committee on Labor and Public Welfare—Sept. 11, 1951.

H. R. 4528 (H. R. 4675) (Transportation of Fireworks):

Written statement by American Medical Association to the Committee on the Judiciary of the House of Representatives—Sept. 19, 1951.

In an effort to arrive at the soundest possible position on gislation and in order to utilize available technical advice and idance to the fullest extent, the Committee has initiated the ocedure of referring new legislation to each interested council, bureau or department of the Association. It is intended that written and oral comments will be presented by them to the Committee on Legislation as such bills are considered.

The Committee has establshed liaison with the committees on legislation of the state and territorial medical associations in an effort to obtain their support and to furnish them with up-to-date information regarding national legislation and the position of the Association with respect thereto. In order to facilitate the dissemination of this information, a monthly legislative review is being prepared and distributed by the Committee, showing the bills introduced each month, the interested council, bureau or department of the Association, previous similar or identical bills introduced and the position adopted by the Association on such earlier proposals. An arrangement has also been made to publish in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION after each meeting of the Committee on Legislation the actions of the Committee on specific bills, as approved by the Board of Trustees.

Report of the Committee on Medicolegal Problems

The Committee on Medicolegal Problems was created by the Board of Trustees at its meeting held on May 28, 1950. This is the second report on the activities of the committee, the first having been incorporated in the Report of the Bureau of Legal Medicine and Legislation, the Director of which is Secretary of the committee.

When the committee was formed it was intended that its membership should be sufficiently diversified in expertness and interests as to constitute an effective agency for dealing with a wide variety of medicolegal problems. It was felt that the existence of a single broadly representative committee of this kind, empowered to appoint special ad hoc subcommittees and to designate special consultants to assist it, would make the existence of a separate standing committee for each different kind of medicolegal problem unnecessary. Thus, as new medicolegal problems arise they may be referred to this committee, which will either deal with them directly or will seek the advice of special subcommittees or consultants in order to prepare its reports and recommendations. Two new members were added to the committee during the past year, one an expert in psychiatry and the other in pathology, to enable the committee to make certain needed expansions in its activities.

The committee found that each of the following subjects deserves a fact-finding survey and the initiation of an active program for improving the manner in which medical knowledge and skill are utilized in the administration of justice:—

1. The cause and prevention of allegations of medical malpractice.
2. The scientific and medicolegal status of tests for the recognition of alcoholic intoxication.
3. The scientific and medicolegal status of blood tests in disputed paternity cases.
4. The teaching of legal medicine and medical jurisprudence in medical schools.
5. The status of the coroner system and the medical examiner sytem in the United States.

During the year the committee held two meetings at which the chairmen of the various subcommittees reported progress in the discharge of their assignments.

Subcommittee on the Cause and Prevention of Allegations of Medical Malpractice.—A report entitled "Malpractice and the Physician" was prepared by the chairman of this subcommittee, approved by the full committee, and published in THE JOURNAL for September 1. The reception of this report has been most gratifying. Within three weeks after its publication, requests were received for approximately 5,000 reprints. An exhibit on the subject has been made available by the committee for use by constituent associations and was presented recently at a meeting of the Connecticut State Medical Society where it was well received. It will be presented at the Los Angeles meeting of the Association.

Subcommittee on the Scientific and Medicolegal Status of Tests for Alcoholic Intoxication.—The chairmen of this subcommittee reports that work has been commenced on the preparation of a comprehensive report dealing with the status of legislation and to interpret correctly proposed and existing regulations. The same relationship was maintained with professional and nonprofessional organizations in the health fields. On request, individual Senators, Congressmen and others were supplied material for speeches, interviews, discussions and questions. This service was not restricted to supporters of the Association's policies.

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on the development of safety standards for use of pesticides, the evaluation of remedial measures and the standardization of nomenclature.

During the past year the committee made arrangements to evaluate a possible new antidote for a pesticidal chemical which is widely used in agriculture. It also appointed subcommittees on nomenclature and on the development of a poisoning reporting system. The subcommittee on the nomenclature has assisted the federal government's Interdepartmental Committee on Pest Control in the selection of generic names for pesticides. It has also provided liaison between the Council on Pharmacy and Chemistry and other interested groups on those items which involve both drug and pesticide nomenclature. The subcommittee on the development of a poisoning reporting system developed a preliminary notification form for the initial exchange of information on pesticide poisonings. This form is being used to integrate data by providing a means for the immediate follow-up and evaluation of poisoning cases by those groups which have the facilities to conduct such inquiries.

MEETINGS

The Council holds an annual meeting to discuss or review important problems in therapeutics, to consider modifications and extension of its activities and procedures, and to receive reports from its various standing committees. During the meeting last year considerable time was devoted to considerations involving revision of the Council rules. The regular activities of the Council, including such matters as the consideration of products, publications and reports, are conducted by means of a biweekly bulletin.

CORRESPONDENCE

Several thousand inquiries pertaining to drugs and therapeutics are answered by the Council office each year. Most of these inquiries come from practicing physicians. The remainder are received from persons or organizations interested in securing information relating to particular drugs and therapeutic procedures. This service is further augmented by numerous telephone inquiries answered directly by professional personnel in the Council office. The bulk of the correspondence is associated with activities related to the drug acceptance program and to the various publications issued or sponsored by the Council.

COLLABORATION

The Council endeavors to collaborate with other groups and organizations on problems of mutual concern or interest. An exchange of valuable technical information is facilitated through liaison with other organizations and scientific groups. Every effort has been made to provide informative responses to inquiries from the World Medical Association on matters relating to drugs and therapeutics.

Information is regularly exchanged between the Council and the revision committees of the U. S. Pharmacopeia and National Formulary, the Federal Food and Drug Administration and the U. S. Public Health Service. Not infrequently information relating to the nomenclature as well as the tests and standards for new medicinal agents is exchanged with groups or agencies in foreign countries.

EXHIBITS

The Council office occasionally assists in the preparation of scientific exhibits on subjects pertaining to the diagnosis, prevention or treatment of disease through the use of medicinal agents. A pictorial means of disseminating authoritative information pertaining to therapeutics is often most useful. An exhibit portraying the useful services which the Council provides for the medical profession has been prepared and is now being shown at various meetings.

COMMITTEE ON RESEARCH

The Committee on Research, as a standing committee of the Council on Pharmacy and Chemistry, has engaged in activities which may be conveniently divided into four spheres: (1) investigations under committee contracts; (2) cooperative investigations; (3) educational and informational services, and (4) grants-in-aid.

Investigations Under Committee Contracts.—During the past year, investigations on the khellol alkaloids have been completed and a final report submitted. The investigation of buffered and adjusted ophthalmic solutions should be completed before the end of the current year. Contracts are about to be signed between fourteen firms and an investigator for a study of the newer anticoagulant drugs and a search for a more satisfactory method for standardization of thromboplastin. Approved for committee sponsorship is a study of the effect of early feeding of meat proteins upon the growth and development of infants.

Cooperative Investigations.—For the past three and one half years the Subcommittee on Steroids and Cancer has been integrating the efforts of 45 centers in a study on the influence of steroid hormones on cancer of the breast, bladder, ovary, uterus, and bone. This year 48 investigators attended a biennial meeting of the subcommittee on April 23 and 24. This cooperative program has been so successful that the Committee on Research has recently approved an extension of the activity of the Subcommittee on Steroids and Cancer to embrace problems relative to the use of steroid hormones and allied substances in metabolic diseases, sterility and pregnancy wastage. Fifteen pharmaceutical firms are supporting this cooperative investigation.

Educational and Informational Projects.—Under the direction of the Committee on Research, a status report on Krebiozen was prepared and sent to the Council on Pharmacy and Chemistry for publication in THE JOURNAL. Articles on Roentgen and Steroid Hormone Therapy in Mammary Cancer Metastatic to Bone and Current Status of Hormone Therapy of Advanced Mammary Cancer were published in THE JOURNAL Nov. 18, 1950, and June 2, 1951, respectively.

Grants-in-Aid.—As the successor to the Therapeutic Research Committee, the Subcommittee on Grants-in-Aid of the Committee on Research has approved the following grants since Jan. 1, 1951; in some cases an unexpended balance remains or the work is not yet completed. These grants were made by the Therapeutic Research Committee. They are listed after the grants issued for the current year.

Grant 2: Percival Bailey, University of Illinois, to investigate stereotaxic apparatus for use on human brains, $500.

Grant 3: Sumner Kalman, Stanford University School of Medicine, to investigate the prolongation of inhibitory effects of steroids on neoplasms, $200.

Grant 4: Charles D. Hendley, Tulane University School of Medicine, to investigate the mechanism whereby circulatory changes affect visual functions, usefulness of visual tests in diagnosis of cardiovascular disorders, and evaluation of effectiveness of therapeutic procedures, $500.

Grant 5: Joseph R. DiPalma, The Hahnemann Medical College and Hospital, to compare the effects of various compounds against quinidine for anti-fibrillatory potency to determine if an effective substitute for quinidine can be found, $200.

Grant 6: Theodore Koppanyi, Georgetown University School of Medicine, to evaluate the effects of intravenous injections of cholinesterases, $400.

Grant 7: Robert S. Litwak, Boston University School of Medicine, to investigate an experimental approach to stenotic lesions of the semilunar valves and their homograft replacement, $500.

Grant 8: James C. Rice, University of Mississippi School of Medicine, to determine the effect of sodium ferricyanide as an antagonist to the action of certain musculotropic poisons, $250.

Grant 9: Miriam E. Simpson and Gertrude Van Wagenen, University of California School of Medicine and Yale University School of Medicine, to study the pituitary gonadotropins in the Rhesus monkey (Macaca Mulatta), $500.

Grant 10: Clinton H. Thienes, University of Southern California School of Medicine, to study the effect of nicotine on the metabolism of the brain, $500.

Grant 11: Harold C. Wiggers, Union University, Albany Medical College, to investigate the production and study of mitral stenosis and/or insufficiency by insertion of substitute plastic valves in dog hearts, $500.

Grant 12: Alan D. Bass and Henry DiStefano, State University of New York Medical College at Syracuse, to investigate alterations in tissue nucleoprotein patterns following administration of therapeutic agents (e.g. morphine, insulin, colchicine), $200.

Grant 13: Edward L. Corey, University of Virginia School of Medicine, the electromyographic study of the human urinary bladder, $400.

Grant 14: T. S. Danowski, University of Pittsburgh School of Medicine, the exploration of the mechanical characteristics and the clinical utility of the Alwall type artificial kidney, $400.

Grant 15: Andres Goth, Southwestern Medical School of the University of Texas, the experimental re-evaluation of analeptics in the treatment of barbiturate intoxication, $400.

Grant 16: A. Clark Griffin, Stanford University School of Medicine, to investigate the alleviation of the symptoms of nitrogen mustards by cysteine and thiourea, $400.

Grant 17: Keith S. Grimson, Duke University School of Medicine investigate the treatment of aneurysms of the aorta, $400

Collaboration with Committee on Cosmetics

The Chemical Laboratory cooperates with the Committee on Cosmetics in the latter's acceptance program. The Laboratory's work entails investigation of the chemical aspects of the product. The results of these examinations and opinions concerning claims made for the product are forwarded to the committee for consideration. Fifty-eight finished products and a considerable number of their components were studied during the past year.

Collaboration with Other Departments of Association

Considerable time was spent in an advisory capacity to other departments of the American Medical Association. These included examination of products for several Councils and Bureaus, and aid to the Editorial Department on chemical statements and nomenclature which appeared in articles to be published in The Journal, to the Library of the Association in classifying entries of chemical and pharmaceutical nature for the Quarterly Cumulative Index Medicus and to the Advertising Committee by examining appliances and test kits considered for advertising and reviewing chemical statements to appear in advertising copy. The laboratory cooperated closely with the Committee on Publications of the Council on Pharmacy and Chemistry in preparation of "New and Nonofficial Remedies" for publication.

Special Problems

Examination of the many products by the laboratory often reveals the desirability of carrying on investigations of a more fundamental nature which frequently develop into relatively long term projects. Among those now being studied are some which had been started several months ago, such as the in vitro comparison of the effectiveness of various antacids and the establishment of criteria for enteric coatings. A new problem under way is a study of the effectiveness of filters in removing tars, nicotine and other constituents from tobacco smoke.

The laboratory is investigating new and advanced analytical technics regarding their applicability to its immediate problems. It has done some investigational work for certain medical groups in which the problems were of general interest to the medical profession.

The laboratory during the past year has corresponded and worked collaboratively with the United States Pharmacopeia, ational Formulary, Food and Drug Administration, American Dental Association and other agencies. It also reviewed for The Journal 45 books of a chemical nature which are of interest to the physician and answered numerous letters of inquiry concerning the chemistry of drugs.

MICROBIOLOGIC SECTION

During the past year the Microbiologic Laboratory has been engaged chiefly in the examination of products, submitted for inclusion in New and Nonofficial Remedies, for which sterility claims have been made by the manufacturer. Approximately one hundred such products have been tested for sterility by methods prescribed by the United States Pharmacopeia XIV and the United States Food and Drug Administration and by other technics especially applicable to the product under study. Various chemical products for which bactericidal and bacteriostatic claims were made have also been tested. In addition to these examinations, several mechanical devices were tested to determine the validity of the manufacturers' claims.

The Microbiologic Laboratory has also cooperated with other departments and councils of the American Medical Association on bacteriologic problems concerned with advertising, literature and revisions for N. N. R.

This department is now actively engaged in a revision of microbiologic procedures in N. N. R., and in a reconsideration of the problem of the cold disinfection of instruments.

Report of the Committee on Cosmetics

The Committee on Cosmetics continued its efforts to encourage the scientific approach in the formulation and manufacture of cosmetics through quality controls and thorough laboratory and clinical investigation. Progress in this direction is most obvious in the number of preparations which have satisfactorily met the requirements of the Committee for acceptance. All products are evaluated on the basis of data on composition, manufacturing controls and advertising claims. Whenever indicated, clinical evaluation of primary irritation and sensitization propensities, toxicologic tests and usuage studies are also required. Accepted products are privileged to display the seal of the committee, which is similar in design to the seals of the scientific councils of the American Medical Association. A list of accepted products appear at intervals in a Report on Accepted Products in The Journal. A pamphlet incorporating all of these reports is under preparation for general distribution.

The committee fosters a better understanding of the need for cosmetics and the health problems which may arise through their use through the dissemination of pertinent information to the medical profession and the public by means of the various mediums available for this purpose. Reports on timely subjects in the cosmetic field are authorized for publication in The Journal and *Today's Health.* More than a thousand inquiries are answered each year by individual letters. The majority of these come from practicing physicians and the scientific personnel of firms manufacturing or distributing cosmetics and allied preparations. The remainder are sent in by persons or organizations interested in the health aspects and the usefulness of cosmetics. Numerous telephone inquiries are answered by members of the professional staff.

An exhibit on cosmetics and dermatitis sponsored by the Committee is available for presentation at medical meetings throughout the country. In addition an electrical transcription on "Cosmetics" is included in the electrical transcription library of the Bureau of Health Education.

During the past year the membership has been enlarged to accommodate the increased scope of activities.

The Committee expresses its gratitude to the various departments at Association headquarters and to the consultants of the Committee who have contributed their valuable services so freely during the past year.

Report of the Council on Physical Medicine and Rehabilitation

In 1951 a physician secretary was added to the personnel of the Council on Physical Medicine and Rehabilitation, and the former Secretary became the Director of Biophysical Investigations. The establishment of a small physical laboratory which will be directed by a physician physiologist was authorized. These changes are designed to assist the Council in continuing, as efficiently as possible, its assigned duties of gathering and disseminating information to aid the medical profession in determining the therapeutic and diagnostic value of devices and methods.

In the course of the year, two of the members, Dr. William Grove and Dr. Walter E. Garrey died. Dr. Arthur L. Watk was elected to succeed Dr. Garey. The appointment of a s cessor to Dr. Grove has not been completed.

PUBLICATIONS

The booklet "Apparatus Accepted" was reorganized or different basis in order that it might be distributed with charge to persons desiring it. Seven articles were adopted published during the year. They were: Suggestions for Prosp tive Purchasers of Electrocardiographs; Emergency Woo Respirator; Minimal Requirements for Acceptable Pure T Audiometers for Diagnostic Purposes; Regulations for thermy Equipment; Hearing Aids and Advertising; Audiome at Higher Frequencies; and The Health Resort in the Mana ment of Chronic Disease.

Approximately 70 pieces of apparatus were submitted consideration during the year. Forty-three pieces of appara were reported on in The Journal in 1951.

COUNCIL ADVISORY COMMITTEES

American Health Resorts.—The Advisory Committee American Health Resorts, in keeping with its task of investig ing American Health Resorts, gave consideration to applicatio from four health resorts which were submitted to the Coun in *1951.*

Artificial Limbs.—The article, "Certification Program Adopt by Prosthetic and Orthopedic Appliance Industry," to appear The Journal or a special monthly publication of the America Medical Association, was adopted by this committee and t Council is going forward with the program.

Audiometers and Hearing Aids.—With the help of this Committee, "Minimal Requirements for Acceptable Pure Tone Audiometers for Diagnostic Purposes," "Audiometry at Higher Frequencies" and "Hearing Aids and Advertising" were published. Twenty hearing aids were submitted, and 13 were accepted; the remainder are undergoing consideration. Five audiometers were submitted, and three were accepted; the other audiometers are undergoing consideration. This committee held its two day annual meeting in July, meeting jointly on one day with representatives of manufacturers of audiometers and hearing aids.

Clinical Thermometry.—This committee of the Council is continuing its survey of problems related to clinical thermometers.

Devices for Fertility and Infertility.—The name of the Advisory Committee on Contraceptive Devices was changed to Advisory Committee on Devices for Fertility and Infertility. This committee has continued to serve the Council through its consideration of submitted contraceptive devices.

Education.—The Advisory Committee on Education has continued its active role within the Council by assisting in the encouragement and development of programs designed to increase the number of physiatrists, physical therapists and occupational therapists. In these activities the Council cooperated with the Council on Medical Education and Hospitals as well as the American Congress of Physical Medicine. A questionnaire, "Teaching Program in Physical Medicine," was mailed to the deans of medical schools. Seventy replies were received. The Subcommittee of the Committee on Education met in 1951.

Electrocardiographs.—Two instruments were submitted to the Council in 1951, and one was accepted. This group met in Atlantic City in June during the annual session. The Advisory Committee is responsible for the publication of the article, "Suggestions for Prospective Purchasers of Electrocardiographs."

Electroencephalography.—One instrument was submitted to the Council in 1951.

Ionizing Radiations.—The name of the Advisory Committee on Roentgen Rays and Radium and the Medical Aspects of Atomic Energy was changed to the Advisory Committee on Ionizing Radiations.

Ophthalmic Devices.—The Advisory Committee on Ophthalmic Devices has continued to advise the Council on visual testing apparatus and the use of beta radiation in the field of ophthalmology and has submitted "Minimal Requirements for Beta Radiation Ophthalmic Applicators" to the Council.

Respirators.—Two respirators were submitted to the Council and two were accepted in 1951.

OTHER ACTIVITIES

The manufacturers of resuscitators and inhalators met in Atlantic City with the representatives of the Council and discussed "Tentative Minimal Requirements for Resuscitator and Inhalator Equipment." One resuscitator and three inhalators were accepted in 1951.

The manufacturers of infant incubators met in Atlantic City with representatives of the Council to discuss the establishment of "Minimal Requirements for Infant Incubators."

Demonstrations and exhibits on subjects relating to physical medicine, as well as other applications of physics to medicine, have been prepared for medical and lay audiences in various sections of the United States. The Council has cooperated with the Bureau of Exhibits in preparing and setting up demonstrations and exhibits. Two of the most noteworthy of these exhibits were "Atomic Energy and Radiation Injury" and "Noise in Industry." The Council has cooperated with the Committee on Medical Motion Pictures in reviewing new educational films and with the editorial staff in preparing articles and reviews.

Report of the Council on Foods and Nutrition

The past year has seen the Council on Foods and Nutrition continue to serve the medical profession in many ways.

FOOD ACCEPTANCE AND ADVERTISING

The food acceptance program of the Council added more than two hundred items to the list of accepted foods. Reviewing food advertising for accuracy has required an ever-increasing amount of time on the part of the Council members and the Council office. This is due largely to the increase in the number of products that have been reviewed. The Council also examines on request educational food advertising presenting information concerning nutritional or physiological values of classes of foods without reference to any specific brand. A great amount of such advertising has been critically reviewed and in almost every instance the suggestions of the Council have been adopted. This is an excellent illustration of the prestige the Council enjoys with the various food companies and trade and professional organizations interested in the dissemination of accurate nutritional knowledge.

ASSISTANCE TO AUTHORS

The Council continues to make its services available to all groups and individuals having a scientific interest in foods and nutrition. During the year inquiries have been answered from members of the profession, laymen, teachers, and governmental agencies here and abroad.

A considerable amount of time and effort has been expended during the past year in assisting writers who are developing articles on subjects related to foods and nutrition. A considerable amount of additional time has been devoted to the review and criticism of finished articles submitted by authors prior to publication. Articles and books have been reviewed for publishers of popular editions. This is a time-consuming process but an important means of encouraging accuracy. Apparently the Council's best opportunity to promote improved nutrition through the work of lay writers is to supply accurate information to those authors who request it and then to depend on their personal integrity.

CHEMICAL FOOD ADDITIVES

The Council reexamined the concept of a wholesome food and specifically called attention to the importance of insisting on freedom from harmful or potentially harmful nonfood additives. A statement and a short definition were published in THE JOURNAL of June 2, 1951. Because of its basic significance the short definition is reproduced here: A wholesome food "is a product which makes a significant contribution to human dietary requirements and which is clean and free from microorganisms and chemical additives of such quality or in such quantities that they may be directly injurious or result in reduced nutritional quality."

Two other important basic statements in this field were made by the Council. A statement expressing the need for adequate testing of all chemical additives destined for use in foods appeared in THE JOURNAL of June 23, 1951. It was pointed out also that not only should chronic as well as acute toxicity tests be performed but practical methods of analysis should be developed before such substances are permitted in foods.

OTHER REPORTS

Because of recurring interest in the safety of aluminum cooking utensils the Council was requested to give an opinion based on the latest available information. This was published in THE JOURNAL of June 2, 1951. It was the Council's considered opinion that the use of aluminum cooking utensils is in no way injurious to health.

An excellent report on vitamin B_{12} and folic acid in infant nutrition. This was published in THE JOURNAL of July 14, 1951. It is a summary of a conference held at the Massachusetts General Hospital by active investigators of the problem.

The long-awaited second edition of the Handbook of Nutrition, published under the auspices of the Council, made its appearance in May, 1951, and has been very favorably received.

In connection with the subject of chemicals in foods the statement appearing in THE JOURNAL of June 23, 1951, was presented, on request, before the House Select Committee to Investigate the Use of Chemicals in Food Products of the Eighty-First Congress, Second Session.

Frozen Foods.—The increasing availability of frozen orange juice concentrate brought a great number of inquiries to the Council office concerning its vitamin C content. Because of the apparent widespread interest in this problem the Council published a report on frozen concentrated orange juice which appeared in THE JOURNAL of May 5, 1951. Included in this report was the statement, "It would appear, then, from studies made to date, that frozen concentrated orange juice, properly processed under low temperature evaporation may be an excellent and dependable source of vitamin C."

Iodized Salt.—The Council on Foods and Nutrition has supported the iodinization of table salt since 1932. The program continues to be recognized as a practical public health measure providing nutritionally essential iodine to assist in the prevention of simple goiter. At the present time fifteen different brands of iodized salt are on the accepted list of the Council. During the past year the Council has cooperated with Dr. Sebrell of the United States Public Health Service and others in the preparation of a pamphlet on the subject of iodized salt and simple goiter.

Flour and Bread Enrichment.—As early as 1939 the Council gave impetus to measures designed to improve the nutritive merit of white flour and bread by suggesting the restoration of important nutrients removed in milling. Subsequently, the enrichment program was developed as a partial remedy for losses incurred in milling. The program is now in its eleventh year and is widely regarded as an important public health measure.

Current Work.—In progress are such considerations as the following matters of interest to the profession and the public: New foods intended for use in sodium restricted diets; the use of nonfood sweeteners in commercially prepared foods; vitamin toxicity; the promiscuous use of vitamins and minerals; fluorine in foods; chemical food additives; labeling of special purpose foods; grades of milk as related to label and advertising claims; nutrition and resistance to disease; and special reports and request articles.

REPORT TO THE COMMITTEE ON LEGISLATION

Because of the Council's long term interest in the problem of food additives, the Committee on Legislation of the American Medical Association requested the Council's opinion concerning H. R. 3257, a Bill to Amend the Federal Food, Drug and Cosmetic Act, as amended, by Providing for the Regulation of Chemical Additives to Foods. This bill was carefully reviewed by the members of the Council and there was a unanimity of opinion with reference to the necessity for the establishment of an effective form of control which will prevent the use of chemical additives in foods before they have been proven to be safe. While the Council did not feel qualified to pass on the exact wording used in the bill, it did approve of H. R. 3257 in principle.

At its meeting in November, 1950, the Council passed a resolution protesting the dissolution of the Nutrition Branch of the United States Public Health Service. This was transmitted to the Surgeon General and others.

SYMPOSIUM EXHIBIT

At the request of the Association's Bureau of Exhibits the Secretary of the Council cooperated in the organization of a Symposium Exhibit entitled, "Overweight, Nutrition and Health," which was presented at the Atlantic City session June 11-15, 1951. The large attendance, together with the letters of commendation that followed, and a special citation by the Committee on Awards indicated clearly the interest of the practicing physician in the subject of foods and nutrition. The sponsoring committee consisted of Dr. Louis Dublin of New York representing the public, Dr. Elliott P. Joslin of Boston representing the group interested in diabetes, Dr. James S. McLester representing the American Medical Association, Dr. Stanley R. Truman representing the American Academy of General Practice, and Dr. Russell M. Wilder representing governmental agencies. Exhibits were prepared by the Metropolitan Life Insurance Company, the Department of Nutrition of the Harvard School of Public Health, the United States Public Health Service, the Joslin-Root Diabetic Group of Boston and the American Dietetic Association. Adjacent to these exhibits was a lecture room in which discussions were conducted throughout the day with a new speaker taking over every half hour. This pattern was followed every day of the meeting with a total of more than fifty speakers taking part in the proceedings.

ORGANIZATION

Over and beyond their professional and Association duties, Council members have made, during the past year, outstanding contributions to the solution of national and world nutrition problems. Members of the group have participated in such work in Austria, Yugoslavia, Japan, Central America, England, and our own national capitol.

The Secretary was again invited to serve as a member of the Department of Agriculture's Ad Hoc Advisory Committee on Food and Nutrition. He was also made a public trustee of the Food Law Institute.

APPRECIATION

The Council appreciates the good will that has been shown by the food industry and their advertising agencies. The decisions of the Council have been graciously accepted in almost all instances. Rapport has been excellent.

Report of Council on Industrial Health

In accordance with past experience, wars or rumors of wars impart new vitality to industrial medical progress. The year 1951 has witnessed a number of significant developments.

INDUSTRIAL HEALTH AND DEFENSE

At the time of its last annual report the Council on Industrial Health was instructed to pay particular attention to the potential contribution of the industrial health profession to defense production. In consequence, a Committee on Industrial Health Defense was created. Two problems of major significance immediately presented themselves and were assigned to subcommittees, both of which have now reported. The first subcommittee has prepared a "Disaster Blueprint for the Industrial Physician." Its recommendations included discussions of specific disaster preparation by industrial physicians with special consideration given to the scope of medical service, first aid training, organization and function of rescue squads, major equipment and supplies, first aid boxes, transportation and communication. It also recommended that, in respect to general disaster controls, industrial physicians should make a health services survey as a means of providing the community civil defense administration with an inventory of industrial health services potential and distribution.

The objectives of the second subcommittee were to inquire into the procurement of additional industrial workers, to recommend procedure for recruiting and training additional industrial health personnel involved. The report of the committee can be summarized as follows:

1. The committee has had three immediate objectives: (*a*) to inquire into the sources of additional production workers (based on available estimates) and to determine the expected demands that are to be made on the health professions in respect to them; (*b*) to recommend procedure for recruiting and training additional industrial health personnel needed to maintain such workers at peak production capacity; and (*c*) to outline the essential industrial health problems involved.

2. Manpower requirements of the present mobilization program call for a net increase in the labor force, civilian and defense, of 3.2 million workers in the two years between the last quarters of 1950 and 1952. It is expected that 2.3 million workers will be added during 1951.

3. Sources of additional manpower must come from won the handicapped, older workers and, in special circumstan adolescents.

4. The principal objectives of industrial health service are same for all workers—selective placement and health mai nance.

5. The committee estimates additional health manpo requirements, on full time bases or equivalent, for defe industry to be

	1951	1952	Tota
Physicians	640	320	960
Nurses	2,120	1,064	3,184
Industrial hygiene engineers	160	80	240

6. The committee recommends that industrial physicians voting full or a substantial part of their time to defense indus should be deferred from military service excepting those organized reserves or in priority groups 1 and 2 under Selecti Service.

7. Training of industrial physicians should include ind trination courses under sponsorship of state and county me cal societies and on-the-job training under experienced industr physicians. All medical schools should provide undergradu

instruction in industrial medicine. Postgraduate training in industrial medicine of specialty grade should be more generally available in medical, public health, or graduate schools. Industry should collaborate to supply coordinated in-plant training.

8. Small plants, especially those going into defense production, should have access to industrial health services. Steps should be taken to encourage the development of such services by individual physicians or groups, preferably under local medical society sponsorship.

Members of the Council and its staff have also participated in the preparation of health and safety standards designed to implement the Walsh-Healey Act which requires that contracts coming within its purview must be carried out under safe and healthful conditions. It is expected that these standards will represent a very important improvement in the application of preventive procedures to industry over the country as a whole.

CONFERENCES WITH STATE COMMITTEES ON INDUSTRIAL HEALTH

A conference held during the Annual Congress on Industrial Health in Atlanta in February was designed to acquaint the Council and committees on industrial health in state medical societies with the work of each and to effect improved teamwork. The goal is to accelerate the development of industrial health services in accordance with accepted standards and with emphasis on local development. The results of this conference were so satisfactory that it is intended to make this meeting an annual event.

INDUSTRIAL HEALTH AND GENERAL PRACTICE

In May 1950, the American Academy of General Practice reported that 94% of its membership cared for industrial cases, that the average number of cases seen in 1948 was 234 per member and that about 20% of its members devote full time to industrial practice. In consequence, representatives of the Academy and of the Section on General Practice of the American Medical Association were invited to meet with the Council's Professional Relations Committee to discuss a program of training for general practitioners in the fundamentals of industrial medical practice. Pursuant thereto a joint committee was established to formulate a plan of action. In summary, the recommendations of the joint committee were that a general practitioner be added to the membership of the Council, that a general practitioner be included in the members of all state or county medical society committees on industrial health, that a committee on industrial health be appointed by the Academy in each of its component groups and that the Council staff develop a detailed curriculum to be used in the postgraduate educational activities of the American Academy of General Practice, the constituent state medical associations and their component societies. The Council will be expected to prepare a list of qualified speakers and teachers for the furtherance of this training program.

NEWS LETTER

The monthly News Letter of the Council has continued to be used as a medium for exchange of information and to promote education and services. The mailing list of three hundred includes the chairman of the state committees on industrial health, state medical society executives and state health commissioners, as well as the official headquarters group. The News Letter is also published each month in the *Archives of Industrial Hygiene and Occupational Medicine*, as a means for wider distribution.

NATIONAL SAFETY COUNCIL

The staff of the Council has acted as consultants to the National Safety Council in the development of audiovisual devices used in teaching health and safety to small conference groups of employees. This is regarded as an important activity since it channels dependable information directly to the workers themselves.

ESSENTIALS OF MEDICAL NURSING SERVICES IN INDUSTRY

As previously reported, the Council, the Industrial Medical Association and the American Association of Industrial Nurses have been engaged in a joint study of medical-nursing relations in industry. The Council on Industrial Health has prepared the following statement which has been referred to the cooperating groups with strong expectations for final agreement:

Essentials of Medical Nursing Services in Industry

The status of the nurse in industry working without direct medical supervision presents an important inter-professional problem. The following statement has been prepared jointly by the American Association of Industrial Nurses, the Industrial Medical Association and the Council on Industrial Health of the American Medical Association to clarify legal and ethical principles, both for the members of interested professional organizations and for industrial employers providing any of the listed health services:

I. The value of physicians and nurses in industry depends on
  A. Training, experience and aptitude
  B. A position of authority in the industrial organization
  C. Good rapport with workers
  D. Good relations with their professional colleagues
  E. Thorough knowledge of work environment and processes
  F. Effective use of community health resources

II. A health service in industry should provide
  A. A safe and healthful work place
  B. Health counseling and health education
  C. Personal medical services as required for
    1. Observance of laws, codes and health regulations
    2. Emergency medical care
    3. Health conservation
    4. Job placement

III. Personal medical services involving the establishment of a diagnosis and the definition of treatment or the performance of specific preventive measures are functions of the physician. However, it is desirable for the nurse to participate in such services.

A. If she acts under medical supervision

B. If she acts in an emergency

Standing orders are used to supplement rather than replace medical supervision. They are defined as a written compend of directions outlining routine medical or nursing services or procedures of an emergency nature approved and signed by a licensed physician and acknowledged by him to be services and procedures which may, in his absence, and until his arrival, be performed by a particular industrial nurse. Standing orders may constitute medical supervision if they are not an attempt to delegate the exercise of medical discretion but only delegate the execution of mechanical, clerical or administrative acts.

IV. In the absence of direct medical supervision and at the time of her employment, the industrial nurse should acquaint her employer with the legal and ethical scope of her services. If she is asked to perform services exceeding her training and licensure, she should seek advice from the nearest official medical or nursing agency.

V. In respect to industrial health services other than those listed as personal, the nurse can exercise considerable initiative. Practical limits must be based on her training, experience, and the availability of qualified consultants.

FIRST AID

A Pocket First Aid Manual is in process of development as a joint project of the Council and the Bureau of Health Education. Contents will be limited to common emergencies, and instructions will be simplified so that those with no formal first-aid training will be able to understand and apply them. Introductory remarks in the Manual will point up the importance of prompt and effective action following injury whether at work, at home or at play. It should serve equally well as a useful guide in civil defense planning.

The Council also received a statement of first aid instructions issued by the Blue Cross Commission. These were reviewed by the Council and after a conference with the staffs of the Council on Pharmacy and Chemistry and Bureau of Health Ed the Blue Cross Commission was informed that these first aid recommendations were in substantial agreement with the publications of the Council.

NOISE

Attention has been directed to the growing importance of impaired hearing sustained by industrial workers exposed to excessive noise. Diagnosis and prevention were discussed at a Conference on the Problems of Noise in Industry presented at Atlantic City in April, co-sponsored by the Subcommittee on Noise in Industry of the American Academy of Ophthalmology and Otolaryngology, the Acoustical Society of America and the Council of Physical Medicine and Rehabilitation. The results of the meeting were gratifying to the medical, engineering and insurance representatives who attended. This session emphasized the need to measure environmental noise levels with special reference to various bands in the sound spectrum where greatest exaggeration has existed; to establish audiometric testing programs as a part of the medical examination in the selection and placement of workers, and to devise a better method than now exists for determination of degrees of hearing loss. All of these matters are being considered by appropriate subcommittees. One specific conclusion was that the diagnosis of occupational deafness must be dependent upon preemployment audiographic records.

THE OLDER WORKER

A Conference on Aging conducted by the Federal Security Agency in Washington last year called attention to the ability and capacity of older individuals for employment. This same problem has been discussed at a number of important conferences during the year, in all of which the Council staff has actively participated. An intensive study of the older worker in relation to employment, similar to the study of women conducted during the last war, is being actively considered.

The Council has agreed to serve as consultant to the Department of Sociology and Anthropology of Cornell University in connection with a survey which concerns itself with individuals approaching the statutory retirement age of 65, and a follow-up after retirement.

CHRONIC ILLNESS

The important relationship of chronic disease to work capacity, absenteeism and labor turnover has proved to be an important link between the Council and the Commission on Chronic Illness. In March 1951 at the first national conference of the Commission, occupational diseases were placed at the head of those in which primary preventive measures are particularly effective. Time was also devoted to secondary prevention, which includes early detection and adequate treatment of disease to stop or control its advance. A consideration of mass screening programs such as are relatively common in industrial health services led to the conclusion that much more study and practice in this field is necessary before a considered opinion could be formulated.

HUMAN RELATIONS

In accordance with instructions from the House of Delegates, the Committee on Human Relations has been formed. Some difficulty has been experienced in securing membership representing the various professions and academic disciplines desired by the Council. On Sept. 3, 1951 the Committee met with representatives of the Industrial Section of the American Psychological Association. At this meeting the discussion was centered on the subject of human factors as exemplified by motivation, morale, attitudes and emotional stability of persons as individuals as well as members of groups in relation to industrial productivity, selection and placement procedures, including follow-through on performance, and the occurrence of accidents. Consideration was given particularly to the role of "industrial physicians" in the teamwork required in industrial organizations for establishing and maintaining a high level of satisfactory human relations practices. Further there was discussion about educational methods for physicians to prepare them for interdisciplinary approaches in dealing with the problems mentioned above. Suggestions emerged from this meeting which may clear the path for fruitful results.

WORKMEN'S COMPENSATION

Further effort is being made to carry out the directive received from the House of Delegates respecting the study of medical relations to workmen's compensation administration, with assistance from the state medical associations, the International Association of Industrial Accident Boards and Commissions, the Industrial Medical Association and the American Academy of Compensation Medicine. The set of principles received from the Medical Committee of the International Association of Industrial Accident Boards and Commissions has been distributed to state medical associations as a basis for further discussions with the applicable compensation authority.

The resolution respecting free choice of physician under the regulations of the Federal Employees' Compensation Act has been referred back to the Council for additional study. A conference is being planned between the sponsors of the resolution, the Consultants on Workmen's Compensation to the Council and the Medical Director of the Bureau of Employees' Compensation of the U. S. Department of Labor.

ATMOSPHERIC POLLUTION

During the year advice has been given to the National Association of Smoke Abatement, the Air Pollution Committee of the American Association of Power Engineers, the Mid-Western Air Pollution Association and the Committee on Air Pollution of the American Society of Mechanical Engineers. Each of these technical organizations has been greatly interested in securing dependable medical consideration of important medical and health aspects. In general, the attempt has been made to discount certain alarmist trends and to base recommendations on proven evidence.

ENVIRONMENTAL HYGIENE

As authorized, the Council has established a Consultin Committee on Environmental Hygiene. An organization meetin has been held, at which time scope and function was outlined Early attention will be given to lighting and vision, stres phenomena in man, selection and placement programs and pul monary physiology with special reference to determination o desirability in industrial pulmonary disease.

REHABILITATION

The Joint Committee on Rehabilitation of the Council o Industrial Health and the Council on Physical Medicine an Rehabilitation was recently reactivated. Consideration will b given to physical restoration, vocational guidance and trainin and the proper placement of handicapped workers. Particula attention has been given to the increasing amount of legislatio regarding rehabilitation and the need for a statement of polic which would enable legislative committees in the America Medical Association and in the state societies to analyze ther intelligently.

EDUCATION

At the request of the Board of Directors of the America Academy of Occupational Medicine, an educational progra has been approved which will be directed towards medica schools and local medical societies. It has been felt that th Academy could provide speakers in various parts of the countr and that the Council could provide publicity and make arrange ments for a series of lectures. During the year steps were take to create an American Board of Occupational Medicine. Th interim group contained representation from the Industrial Medical Association, the American Academy of Occupational Medicine, and the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association. A constitution and by-laws were approved calling for nominations to a Permanent Board, rotation of these same groups which in turn would define the character of training and experience needed to qualify for membership. The Council has no direct responsibility in the development of a certifying board although a number of its members have served in the organizational activity described.

Report of Council on National Emergency Medical Service

This report of the Council on National Emergency Medical Service covers the period from Oct. 1, 1950 to Sept. 30, 1951. During this period, the activities of the Council have been increased and expanded to keep pace with the chaotic international situation. The continuance of the conflict in Korea and the increasing possibility of an all out war have served to underscore the need for accelerating civil defense planning and for developing and implementing sound policies and procedures for mobilizing the nation's medical manpower.

MILITARY AND SELECTIVE SERVICE ACTIVITIES

The employment of a large number of military and naval personnel in Korea and for occupation purposes in Europe and Japan has occasioned a reversion to the utilization of medical personnel on a wartime basis. The Council has, therefore, worked closely with the Surgeons General of the Armed Forces and the Armed Forces Medical Policy Council of the Department of Defense in an effort to (*a*) prevent a repetition of the medical overstaffing which occurred in certain areas during World War II; (*b*) curtail the utilization of medical personnel on nonprofessional assignments; (*c*) facilitate and increase the efficiency of the administration of the Doctor Draft Law (Public Law 779, 81st Congress, as amended), and (*d*) effect a timely and orderly system of recall and rotation of medical reservists.

Reports received from individual physicians and from official spokesmen for the Armed Forces indicate that there has been a marked improvement in the recruitment and the utilization of medical personnel. It is also readily apparent, from official medical reports from the Korean theater, that the quality of medical care being furnished is far superior to that furnished during any other period of our nation's history.

The Council has attempted to insure a proper balance between the medical needs of the civilian population and the serious and pressing demands for physicians by the Armed Forces by working closely with the Health Resources Advisory Committee and the National Advisory Committee to Selective Service System on a national level and with the State Advisory Committees to Selective Service on a local level. In addition to participating in general planning and policy formulation of this type, the Council has brought numerous deserving individual cases to the attention of local advisory committees and has thereby insured their proper and equitable disposition.

A continuing effort on behalf of the Council has contributed, in a large measure, to the adoption of the following two policies by the federal government:

1. The transfer of seriously disabled service personnel to Veterans Administration hospitals and domiciliary centers. This policy has resulted in a more efficient use of such veterans facilities and the reduction of the need for additional military medical installations.

2. The utilization of civilian physicians, with reserve commissions, in the performance of induction and periodic reserve physical examinations. This procedure reduces the number of physicians required in the Armed Forces and permits the individual physician to earn point credits under the provisions of Public Law 810, 80th Congress.

An analysis has been made of existing provisions of law granting medical benefits to dependents of service personnel and of proposals to extend such benefits. It is the belief of the Council that wholesale extensions of such benefits to the dependents of military personnel without regard to need or the availability of private medical facilities and to the civilian employees of the Government, as have been proposed, would in actuality be a step toward the socialization of medical care.

On Aug. 17, 1951 the Chairman and other members of the Council appeared before the National Security Training Commission and made extensive recommendations with respect to the following health and medical aspects of Universal Military Training:

(*a*) The continuation of preprofessional and professional education for qualified students.

(*b*) The method of performing preinduction, induction, and periodic reserve physical examinations.

(*c*) Extent of medical services to be provided for members of the national security training corps.

(*d*) Eligibility of members of national security training corps and reserve components for veterans medical benefits.

(*e*) Source and selection of medical and allied professional personnel to man the program.

The proposals of the Council were well received by the Commission, which will recommend the framework of a Universal Military Training Program to the Congress in the near future, in accordance with Public Law 51, 82nd Congress.

CIVIL DEFENSE ACTIVITIES

As a result of the acceptance of the theory of total war by certain countries, the tremendous increase in the areas of wartime operations and the introduction of new weapons of mass destruction, it is imperative that the medical profession continue and accelerate its integration into national and local civil defense medical planning. An appreciation of the seriousness of the present international situation and an understanding of the management and manner of caring for the casualties which would result from an atomic, biologic or chemical attack are two of the most important challenges facing American medicine.

In an effort to sponsor an educational program with respect to the medical aspects of civil defense, the Council has continued to maintain close and constant liaison with the Federal Civil Defense Administration. The information received from this and other sources has been disseminated to the membership of state medical societies through the state emergency medical service committees. An effort has been made to obtain all civil defense medical literature and local civil defense plans, which in turn have been distributed for the information and guidance of the state emergency medical service committees.

Beginning with the first week of May, a weekly Information Memorandum has been distributed to the members and consultants of the Council, advising them of the latest civil defense developments and furnishing them with copies of the most recent civil defense publications. A similar News Letter is dispatched on a monthly basis to a mailing list of over five hundred persons, mainly the chairmen and members of state emergency medical service committees.

The Council is now in the process of preparing a bibliography of published material and in the establishment of a package library service in order to facilitate the furnishing of this literature to any interested physician.

During the month of January, 1951 questionnaires were sent to each state and territorial medical association for the purpose of determining the status of local civil defense medical planning and to obtain suggestions as to how the Council could be of greater assistance. Replies were received from all but six societies. Since the receipt of this information, frequent contacts had been made with the state emergency medical service committees to assist them in accelerating and perfecting their local planning. It is planned to canvass the state societies again within the next month to obtain a more up-to-date status report.

Three publications dealing with planning and organizing for radiological defense were prepared by Dr. George M. Lyon and published under the sponsorship of the Council. These publications, which received excellent reviews, have been requested by over 650 individuals and organizations. They are entitled:

Planning and Organizing for Radiological Defense in Civil Defense.

Training Plan, Courses in "Medical Aspects of Atomic Warfare," "Medical Aspects of Radiological Defense," "Radiological Defense (Monitors)."

Civil Defense Planning and Organization with Special Reference to Medical and Health Services, including Radiological Defense.

A series of ten technical articles dealing with the medical aspects of civil defense are currently being published in THE JOURNAL of the American Medical Association under the sponsorship of the Council. All of the articles have been submitted to THE JOURNAL and seven have been published to date. When the publication of the entire series is completed, it is planned to reproduce and distribute them in a booklet form. The articles are entitled:

Civil Defense Organization and Medical and Health Service in Civil Defense, by Dr. James C. Sargent.

Medical Aspects of Civil Defense in Biologic Warfare, by Dr. Victor H. Haas.

Local Tactical Planning and Logistics in Medical Aspects of Civil Defense, by Dr. Perrin H. Long.

California reversed an appellate court decision referred to in the last annual report of the Bureau and held that the property of a charitable hospital used for a thrift shop is not exempt from taxation even though the income therefrom is wholly used for charitable purposes.[17] The Supreme Court of the United States held that the Federal Government is not liable, under the Federal Tort Claims Act, for injuries to servicemen attributed to alleged negligent treatment given by army surgeons.[18] It is discriminatory to make a lay laboratory pay a sales tax for x-ray film used by it and to exempt from such tax hospitals and x-ray laboratories not under lay control, according to the district court of appeals, 2nd district, division 1, California.[19] The Supreme Court of the United States upheld the validity of the Marihuana Tax Act as a legitimate exercise of the taxing power, despite the act's collateral regulatory purpose and effect.[20] The Supreme Court of Mississippi held that the existence of outstanding capital stock did not necessarily disqualify a hospital as a "non-profit corporation." [21] A mechanotherapist, according to the Supreme Court of Ohio must not prescribe or administer drugs of any kind in performing minor surgery. The minor surgery which is performed must be an operation within the limits of mechanotherapy, and vitamins, liver extract, sulfathiazole ointment and metycaine are drugs within the meaning of the Ohio law.[22] The Court of Appeals of Maryland held that, under the facts shown, a chiropractor could maintain an office in the basement of his home, even though the deed to the property on which the home was erected contained a restriction that it "shall be occupied and used for residence purposes only and not otherwise." [23] The United States district court, district of Oregon, held that the Oregon State Medical Society, the Oregon Physicians Service and a number of individual physician defendants did not, in the organization and operation of Oregon Physicians Service, conspire to restrain and monopolize prepaid medical care in the state or the prepaid medical business in the areas in which it operated. The court also held that the practice of medicine as conducted by the doctors in the state and the sale of medical services as conducted by doctor-sponsored organizations within the state, are not trade or commerce within the commerce clause of the Constitution or within the Sherman Anti-Trust Act.[24] In Texas, the State Medical Association joined with two county societies in a statement that certain advertisements of the Committee for Chiropractic Education, Inc., were paid 'special edition' packed with misrepresentations. However, it was written to look like a real news section so that its misrepresentations might appear to be legitimate." The court of appeals held in effect that such a statement was libelous per se.[25]

Two decisions involved the right of the governing board of a governmental hospital to dismiss physicians from staff membership. The Supreme Court of Wisconsin held of no effect a resolution adopted by a municipal hospital permitting the board to dismiss a physician from the staff when, in its sole judgment, the good of the hospital or of the patients demanded it. The decision was grounded on the failure of the resolution to provide for (1) notice to the physician of the nature of the charges against him or (2) notice to the physician of the date of a hearing at which he could appear and defend himself.[26] The Supreme Court of Arizona held a resolution of a county hospital void for the same reasons. It also held to be so unreasonable as to be unconstitutional a resolution of the hospital which provided that if any doctor using the hospital facilities requests another doctor, also using such facilities, to assist him professionally, and that doctor refuses to give such assistance, then the physician so refusing would not be allowed to use the hospital facilities thereafter.[27] In another Arizona case, the Supreme Court held that naturopaths may not use drugs in the practice of their branch of the healing art.[28] The same court also expressly overruled one of its prior decisions and held that charitable institutions (in this case a hospital) are liable for the torts of their servants from which injury results to a third person, whether or not such third person is a patient and whether or not such patient is a paying or a non-paying one.[29] The United States district court in Iowa held that the earnings of a nonprofit organization did inure to the benefit of indivdual members when such members were reimbursed for expenses of litigation and for judgments rendered against them. The organization was held not to be exempt from the payment of a capital stock tax.[30]

STATE LEGISLATION IN GENERAL

The annual summary of state laws of interest to medicine prepared by the Bureau will be published in THE JOURNAL in the near future. Reference is here made to some of the more important 1951 enactments.

Basic Science Acts.—A new basic science law was enacted in Nevada, bringing the total to nineteen states, the District of Columbia and Alaska. An amendment to the Arizona basic science act exempts physicians employed full time by federal and state hospitals and by federal, state or local health departments. A Wisconsin amendment exempts dental hygienists. A Texas amendment permits the issuance of temporary license effective until the next regular meeting of the board of basic science examiners.

Laws Relating to Limited Practitioners.—A state board o chiropractic examiners was created in Pennsylvania. By this la chiropractic is defined as a system of locating misaligned o displaced vertebrae of the human spine, the examination pr paratory to and the adjustments by hand of such misaligned o displaced vertebrae and other articulations together with th use of scientific instruments of analysis as taught in approv schools and colleges of chiropractic without the use of eith drugs or surgery. The term "chiropractic" does not include th practice of obstetrics or reduction of fractures or major disloc tions. An amendment to the Nevada chiropractic act provid for the licensing of persons desiring to practice chiroprac physical therapy which is defined to be the adjustment of th articulations of the human body by hand and the use of elect cal, mechanical, hygienic and sanitary measures, which measur do not pierce or sever the body tissues. A Florida law provid that no person shall operate a chiropractic hospital without fi obtaining a license to do so from the Florida state board chirpractic examiners.

Two Pennsylvania laws relate to the practice of osteopath One defines the word "physician" as an individual licensed und the laws of the state to engage in the practice of medicine an surgery or in the practice of osteopathy or osteopathic surge The other defines the word "medical examiner" in connecti with private and parochial school examinations as includi licensed physicians qualified to practice medicine and surge or osteopathy or osteopathic surgery.

Although two other states were asked to do so, only Oreg enacted a law providing for the creation of a state board examiners in massage. This law defines massage as pressure o friction against, stroking and kneading the body and gymnasti with or without such appliances as vibrators, infra-red heat, s lamps and baths in order to maintain good health and to esta lish and maintain the body in good physical condition, provid that no person licensed under this act may give chiroprac adjustment, osteopathic manipulations or naturopathic manip lations.

Florida, Georgia, Illinois, Minnesota, New Hampshire, Ne Mexico and North Carolina enacted either registration or licen ing laws to regulate the practice of physical therapy. In ge eral, these laws define physical therapy as the treatment o disability, injury and disease by nonmedical means comprisin the use of massage, therapeutic exercises and the physical, chem cal and other properties of heat, light, water and electrici (except roentgen rays, radium and electrosurgery). All of thes laws provide, in effect, that registrants thereunder shall practic as physical therapists only under the prescription, direction an supervision of a licensed physician. A Connecticut law authoriz the Board of Trustees of the University of Connecticut to off instruction in physical therapy as a part of the university program and to grant suitable degrees therein.

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[17] *Cedars of Lebanon Hospital v. Los Angeles County,* 221 P. (2d) 31.

[18] *Jefferson v. United States, United States v. Griggs,* 71 S. Ct., 153.

[19] *Marainville v. State Board of Equalization,* 222 P. (2d) 898.

[20] *United States v. Sanchez,* 71 S. Ct., 108.

[21] *Craig v. Mercy Hospital-Street Memorial,* 47 S. (2d) 867.

[22] *Botkin v. State Medical Board,* 96 N.E. (2d) 215.

[23] *Osborne v. Talbot,* 78 A. (2d) 205.

[24] *United States v. Oregon State Medical Society,* 95 F. Supp., 103.

[25] *State Medical Association of Texas v. Committee for Chiropractic Education, Inc.,* 236 S.W. (2d) 632.

[26] *Johnson v. City of Ripon,* 47 N.W. (2d) 328.

[27] *Findlay v. Board of Supervisors,* 230 P. (2d) 526.

[28] *Kuts-Cheraux v. Wilson,* 229 P. (2d) 713.

[29] *Ray v. Tucson Medical Center,* 230 P. (2d) 220.

[30] *National Chiropractic Association v. Birmingham,* 96 Fed. Supp. 874.

Georgia and Minnesota enacted laws creating a state board of examiners of psychologists. The Minnesota law did not define psychology or psychologists, but the Georgia law defines a psychologist as a person who holds himself out to be an applied psychologist and renders to individuals or to the public for fees any service involving the application of recognized principles, methods and procedures of the science and profession of psychology, such as interviewing, administering and interpreting tests of mental abilities, aptitudes, interests and personality characteristics for such purposes as psychological diagnosis, classification or evaluation or educational or vocational placement or for such purposes as psychological counseling, guidance or readjustment. Nothing in the Georgia law permits the administration or prescription of drugs or the practice of medicine. A New York law amends the existing mental hygiene law in relation to certified examiners and certified psychhologists, by providing that such person must have had two years of post-graduate study in psychology including advanced courses in clinical and abnormal psychology and testing at an approved university or college and three years of full-time or equivalent part-time clinical experience in the psychological examination of children or mental defectives.

Medical Practice Acts.—The only state which enacted a complete revision of its medical practice act was Colorado. Some of the significant changes contained in this revision are: (1) two members of the board of medical examiners must hold the degree of doctor of osteopathy; (2) the new definition of practice of medicine specifically covers the treatment of mental conditions; (3) the definition of medical college includes colleges conforming to the minimum educational standards established by the American Osteopathic Association; (4) the definition of an approved internship includes internship in hospitals conforming to the minimum standard for intern training established by the American Osteopathic Association; (5) the definition of approved residency includes residency in hospitals conforming to the minimum standards for residency training established by the American Osteopathic Association; (6) interns and residents rendering services in hospitals in the state are specifically exempted from the medical practice act under prescribed conditions; and (7) pharmacology, chemistry, bacteriology, gynecology, therapeutics, public health and sanitation are added to the list of examination subjects.

A number of miscellaneous medical practice act amendments were enacted. In Florida, Oklahoma and Virginia annual registration laws were enacted. A California amendment defines the word "diagnose" or "diagnosis" to include any undertaking by any method, device or procedure whatsoever, whether gratuitous or not, to ascertain or establish whether or not a person is suffering from any physical, mental or nervous disorder. The taking of a person's blood pressure is specifically included. Oklahoma and Wisconsin enacted laws permitting the use of the injunctive process to restrain violations of the medical practice acts. Delaware, Illinois, Nevada, New Hampshire and Texas enacted laws authorizing the issuance of temporary certificates to practice medicine under prescribed circumstances. Alabama and Maine authorized their boards of medical examiners to issue reciprocity certificates in certain instances and a California amendment provides that the applicant for a reciprocity license must have had a license issued in some other state at least one year prior to the date of application for a California license.

In relation to internship, a new California law provides that applicants who graduated from a foreign medical school may, in lieu of a one year internship in a hospital approved by the board, complete a final year of medical instruction in an approved medical school in the United States, and Oregon eliminated the one year internship requirement as a condition of licensure. In Florida, California and Illinois the adjudication of insanity of a practitioner was made grounds for the revocation of the practitioner's license. A California law provides that any physician who while in actual attendance on patients is intoxicated to such an extent as to impair his ability to practice shall be guilty of a misdemeanor. Another California law provides that after 1955, applicants for a physician's and surgeon's certificate must present evidence of having completed a three year residence course of college grade before commencing the study of medicine. A Florida amendment requires applicants for a license to be citizens of the United States. Another Flordia law authorizes the board of medical examiners to pass upon the good standing and reputability of any hospital and to determine those which maintain a standard of training sufficient to be recognized by the board. A third Florida law provides that no person may be employed or act for more than three years, as a resident physician, assistant resident physician or intern without registering with the state board of health. To continue such employment beyond three years, the person must become duly licensed as a physician by the board of medical examiners. A New Mexico amendment provides that nothing in the medical practice act should be construed to prohibit any physician who has been lawfully licensed to practice in another state from entering into a contract with a New Mexico state institution to serve as a member of the medical staff exclusively, or from entering into a contract with an employer for the treatment of its employees only if such employer maintains a hospital for the benefit of its employees and if the physician submits proof that he has received a notification by the medical examining board of New Mexico that he possesses the necessary character and qualifications. A West Virginia amendment would admit to examination for a medical license persons graduating from a medical school after January 1, 1939, if they meet all the requirements of the law pertaining to education and training except that their medical school was not at the time of graduation a class A medical school as defined by statute. A Wisconsin law authorizes the board of medical examiners to accept, in lieu of its own examination, the certificate of the National Board of Medical Examiners.

Corporate Practice of Medicine.—A California law authorizes the board of medical examiners to grant approval of the employment of physicians and surgeons on a salary basis by licensed charitable institutions, foundations or clinics or by approved medical schools operating clinics therewith, providing no charge for professional services rendered to patients is made by the institution. A Connecticut law authorizes the incorporation of medical clinics. This law provides that any three or more persons licensed pursuant to the medical practice act may associate to form a corporation, without capital stock, to own, operate and maintain a clinic for the study, diagnosis and treatment of human ailments and injuries by persons duly licensed and to promote medical, surgical and scientific research and learning provided that such corporation may not itself give medical or surgical treatment, consultation or advice and provided that persons duly licensed, and no others, may be members of such corporation. Before commencing operations, such corporations must receive a certificate of registration from the Connecticut medical examining board, which certificates shall be renewed annually.

Barbiturates and Other Drugs.—Laws prohibiting the sale of certain drugs except on the written prescription of a physician were enacted in Arkansas, New Mexico and Texas. The Arkansas law amends the 1935 law which applied only to the barbiturates by adding amphetamine and desoxynor-ephedrine. The New Mexico law makes it unlawful for any person to sell any dangerous drug except on the prescription of a licensed physician, dentist or veterinarian, with exceptions relating to wholesalers, and defines the term dangerous drugs as including hypnotic drugs (acetylurea derivatives, barbituric acid derivatives, chloral, paraldehyde, phenylhydantoin derivatives, sulfonmethane derivatives) aminopyrine, cinchophen, diethylstilbesterol, ergot, cotton root, sulfanilamide, thyroid, and compounds of any of these drugs. The Texas law makes it unlawful to sell or deliver any barbituric acid, amphetamine and desoxyephedrine except by a pharmacist upon an original prescription of a physician, dentist, chiropodist or veterinarian.

Hospital Licensing Laws.—Michigan, Nevada, New York and Washington enacted either amendments or new laws relating to the licensing of maternity hospitals. A new Washington law provides regulations for the licensing and regulation of nursing homes and a Wisconsin revision of the law relating to the licensing of nursing homes provides for the use of the injunctive process against any person or agency operating such a home without the required license. A California law authorizes the

State Deparment of Public Health to prescribe minimum standards for public medical institutions and to certify to the State Department of Social Welfare those institutions which meet the standards established.

Anatomic Acts; Testamentary Disposition of Body.—Laws providing for the distribution to certain research and educational institutions of unclaimed dead human bodies, under certain prescribed circumstances, were enacted in Arizona, Florida, Kansas and Wisconsin. A North Carolina law authorizes a person by will to dispose of a whole or a part of his or her body to a teaching institution, university, State Department of Health, legally licensed hospital or any other agency or commission authorized to operate an eye bank, bone or cartilage bank, a blood bank or any other bank of a similar nature and kind designated for the rehabilitation of the maimed.

Animal Experimentation.—Laws relating to animal experimentation were enacted in California, Illinois, Oklahoma and South Dakota. In general, these laws authorize a particular department of the state government to issue licenses to certain qualified institutions desiring to obtain and use animals in the conduct of scientific and educational activities.

Blood Grouping Tests.—A Pennsylvania law provides that in any proceeding to establish paternity the court on motion of defendant shall order the mother, her child and the defendant to submit to one or more blood grouping tests by a duly qualified physician to determine whether or not the defendant can be excluded as being the father of the child, and the results of such tests may be received in evidence in cases where definite exclusion of the defendant is established.

Prepayment Medical and Hospital Care Programs.—An Illinois law provides for the incorporation of lay sponsored voluntary health services plans which need not obtain the cooperation of a majority of the resident doctors in any county in which it proposes to operate. A Connecticut law would permit nonprofit medical service corporations to make payment for the professional services of dentists. A Kansas law amending the nonprofit medical service corporation acts, set up provisions relating to the establishment of reciprocity benefits which may be applicable to employees of corporations transacting business in Kansas. A West Virginia law provides, among other things, that spital and medical nonprofit corporations must provide, in eir contracts, that in case of a deficit of available funds, each participating hospital or physician will accept a prorata share of available funds in full settlement of any bill submitted. An Illinois law provides new regulations for the organization of nonprofit hospital service corporations.

Medical Examiners; Autopsies.—An Arkansas law establishes the office of state medical examiner and prescribes the powers and duties of such medical examiner with respect to investigations and autopsies. The law provides that the state medical examiner shall be the head of the department of pathology of the University of Arkansas Medical School and that there shall be established a laboratory having adequate facilities for the conduct of autopsies and of such pathological, bacteriological, toxicological examinations as may be necessary or proper. Two Florida laws concern the appointment of county medical examiners and the duties of such medical examiners relating to autopsies and investigations of death. Another Florida law authorizes certain county judges and county solicitors throughout the state to secure the services of a physician in connection with the investigation of crime. A New Jersey law authorizes county physicians to perform autopsies or to direct some licensed physician to do so when in the opinion of the county physician an autopsy is necessary to determine the cause of death. A South Dakota law sanctions the performance of an autopsy by a physician or surgeon when authorized (*a*) by the deceased during his lifetime, (*b*) by the deceased's surviving spouse or (*c*) if the surviving spouse is incompetent or not available or if there be no surviving spouse, by an adult child, parent, brother or sister of the deceased. An Alabama law directs the state toxicologist to furnish a certified copy of any investigation which he conducts, to the person who orders the investigation, and provides further that original copies of such reports shall be retained by the state toxicologist and shall be open to public inspection at all reasonable times.

REBATES

In July, 1946, the United States filed complaints against certain optical companies and more than 4,000 individual physicians charging the defendants with a violation of the Sherman Anti-Trust Act for engaging in rebating practices in connection with the dispensing and sale of eye glasses. In May, 1951, almost five years later, final judgments were approved and entered in these cases. These final judgments enjoined the individual and corporate defendants from accepting or paying, directly or indirectly, any such rebates in the future. Existing laws in a number of states also specifically prohibit the paying or accepting of rebates. During the past year the Bureau brought its comparative chart of these state laws up to date. Copies of this chart are available on request.

COOPERATION

This report would be incomplete if it did not give grateful acknowledgment of the helpful cooperation extended to the Bureau during the year, particularly by the Board of Trustees, the Secretary's Office, and members of the official staffs of bureaus and councils at headquarters. The Bureau hopes that it has, in its effort to reciprocate, met with success.

Report of the Bureau of Health Education

There have been no radical changes during the past year in the program of the Bureau of Health Education. The principal phases of activity continue to be the answering of questions by mail, preparation and distribution of radio transcriptions, preparation and broadcasting of network documentary programs, exploratory activities of the television field, the school health program, pamphlet publications, cooperative and liaison activities with other agencies, studies in school health procedures and studies in the teaching of preventive medicine in medical schools.

Today's Health and the Bureau continue to work in close cooperation, each supplementing the work of the other until they have become practically one unit.

QUESTIONS AND ANSWERS

Individual communications received and answered in th Bureau Department responsible for dissemination of health edu cation information for lay consumption totaled 12,722 for th period from Sept. 1, 1950, through Aug. 30, 1951. Each wa given individual screening, and in addition to personal replie special referrals were made to one or more of 26 national organ zations concentrating on specific problems such as heart disease diabetes, cancer, epilepsy, tuberculosis, etc.

With a slight increase in virtually all categories in which princ pal interest was displayed, there was some shift in popularity o individual topics. Mental hygiene took the lead followed by plas tic surgery, allergy and child guidance. Interest in plastic surgery doubtless can be credited to newspaper accounts of methods fo correcting scars and other skin blemishes. The only other ne topic in the list was child guidance. Although inquiries about th American Medical Association and its services increased onl slightly, continuing interest is evident.

In addition to literature sent on specific request, a variety c free material was mailed, principally to school teachers, in whic chief emphasis was on general services of the Bureau and th interest of the American Medical Association in health educatio and community health services. Answers were provided for questions referred from various health museums and health exhibit presented under medical society or auxiliary auspices.

From the correspondence handled, questions and answers considered of sufficient general interest were selected for publication in *Today's Health.*

LOAN COLLECTIONS

Requests for material intended to assist physicians in the preparation of talks for lay groups came from 24 states and included 21 different topics. The subjects most in demand were medical advances, sex education, heart disease and cancer.

Encouraging evidence continues to be observed that more and more state medical societies are providing material of this nature for use by physician members as part of the greatly increased interest in promotion of sound health education and favorable attitudes on the part of lay groups.

NEW ELECTRICAL TRANSCRIPTIONS

The following new radio transcription series have been prepared:

(*a*) *The Best Is Yet to Be.*—A 13-program dramatization series dealing with some of the problems of older people with emphasis on how they can live more successfully and more happily.

(*b*) *Hi-Forum.*—A unique series of documentary interviews tape recorded on the spot in fourteen American cities of all sizes and kinds in all parts of the nation. The teen age high school students, in discussion of their own most vital problems of physical and emotional health, are representative young Americans coming from large cities and farm communities, many races and religious, in a variety of social and economic backgrounds. Programs were planned in cooperation with high school faculty and youth leaders and high school and college radio workshops.

(*c*) *Main Street Medicine.*—A series of dramatizations giving the highlights typical of the progress which the "main street" communities in the United States are making by cooperative effort of many citizen groups toward providing better medical care and public health services at prices which bring these necessities within the reach of everyone.

(*d*) *Gold Medal Doctors.*—Each year since 1938 the American Medical Association has awarded a Gold Distinguished Service Medal to a physician for scientific achievement in the course of his life. These transcriptions are authorized biographies of the recipients of the award including recorded remarks in their own voices, where available.

Productions to be released during the remainder of 1951 consist of the following series: "Doctors Report" and "Panorama of Research."

"Doctors Report," released on Sept. 15, 1951, consists of 13 transcriptions recorded from the 100th annual session of the American Medical Association, which contain the latest advances in medical progress. The programs were selected from 24 recorded for the Voice of America and now being broadcast to English-speaking physicians in Europe, the Far East and Southwestern Asia.

Preparations have also proceeded for the release of "Panorama of Research," a narrated series by Cy Harrice with script by Farlan Myers.

A feature in preparation for 1952 is "Interlude." This series is a sequel to the successful transcription series, "Melody of Life" and presents the life stories of 13 composers with reference to their health and aging problems.

DOCUMENTARY RADIO PROGRAMS

The Bureau produced three documentary programs in the past year.

1. *Machines Without Men.*—A documentary radio poem on progress and industrial health starring Carl Sandburg, prepared under the supervision of the Director of the Bureau, together with Dr. A. J. Lanza, Chairman, and members of the staff of the Council on Industrial Health. This program was broadcast over the NBC network Sept. 7, 1950.

2. *The Wooden Fish.*—A special 30 minute dramatized program emanating from the World Medical Association Meeting last autumn. This program was released Oct. 19, 1950 and recordings of it were sent to all radio stations using the Bureau's electrical transcriptions. The World Medical Association meeting in New York last year was called to order by a gavel in the form of a fish. This symbol was presented to the association, which represent 500,000 physicians across the world, by the delegate from Nationalist China. It represents to Orientals the symbol of intelligence and energy, and it is also the symbol of ancient Christianity. The timeliness of this subject and its message in support of democracy and against communism created the incentive for this program. Reports indicate that this program was well received.

3. *School House Anywhere.*—The second documentary network program produced in 1951 utilized an unusual radio technic, featuring students of the New Trier Township High School, Cook County, Ill., Verse Choir as "Narrator." This program depicts problems and hazards concerning school children today. Mail requests for scripts and the excellent appraisal of this program by the general public and health educators throughout the country indicate that "Schoolhouse Anywhere" was well received.

RADIO PLATTER SERVICE

The electrical transcriptions distributed by the Bureau of Health Education have gone to varying numbers of stations annually. Usually between 300 and 400 stations carry the programs each year. There is adequate evidence that the electrical transcriptions perform a highly valuable continuing service from which the medical profession is reaping the good will of the radio stations and through which large audiences are being served, often in out of the way places not reached through other channels by the medical profession. In many instances newly established radio stations request our programs to be a part of their specially advertised opening broadcasts. Large numbers of commercial stations regularly place the programs on sustaining time in major population centers and often at the most favorable listening hours. In a few instances local commercial sponsors have been procured and these have been as continuously pleased with the platters as have the program directors of the stations.

In many cases the platters have been requested by and furnished to schools for use in the classroom, and several times cooperation has been established between broadcasting stations and school systems for in-school listening integrated with the health teaching curriculum. To the present knowledge of the Bureau, the platters are performing a useful service in health education and are keeping the name of the American Medical Association before the people in a constructive and favorable light.

In addition to distribution within the United States, the platters have been used in Alaska, Hawaii, the Philippines and the Canadian provinces of Ontario, Quebec and Alberta. Samples and scripts have gone all over the world in reply to requests received in response to announcements in radio trade publications and the educational press, as well as in publications of the United States Government. The National Association of Broadcasters has the platters on its list of recommended transcriptions as does the Federal Radio Education Commission of the U. S. Office of Education.

TELEVISION

The Bureau of Health Education produced one television show during the fiscal year. The program was entitled "Dr. Webb of Horseshoe Bend" and was telecast over WABC, television, New York, on Jan. 22, 1951 from 8:30 to 9:00 p. m. This half hour dramatic show, starring Walter Hampden, emphasized the importance of the general practitioner, and the problem of doctor supply in rural areas. Kinescopes (16mm sound tract films) were made available to local medical societies without charge, except return postage, for single showings in each television community. Considering that distribution of the "Dr. Webb" kinescope was utilized in more than two-thirds of the television outlets throughout the United States, the outcome of the Bureau's first venture in television production can certainly be termed satisfactory.

Early in 1951 the Bureau also released a series of twelve television scripts planned for local production. Each script package contains sufficient copies for studio use in production, as well as all necessary casting and prop lists. All illustrative material—including titles on slide film, drawings and photographs, charts, and so forth are likewise included in the script package. These materials are on loan at no charge to local medical societies and must be returned after use.

RADIO AND TELEVISION FROM CLINICAL AND ANNUAL SESSIONS

Radio and television service other than scientific telecasting in color in connection with the Cleveland Clinical Session and the Atlantic City Annual Session were handled, as usual, by the Bureau of Health Education.

In many instances the Bureau's materials were used by well-known broadcasters and telecasters, such as Arthur Godfrey, Edward R. Murrow, Pauline Frederick and Nancy Craig, on established programs with wide and regular listening audiences.

SCIENTIFIC BROADCASTS ON "VOICE OF AMERICA"

During the 1951 Annual Session of the American Medical Association, the Bureau of Health Education at the request of the United States Department of State made 24 tape recordings based on scientific exhibits or papers shown or read at the session. These are for broadcast to English-speaking areas overseas. Thirteen of the 24 tape recordings will be made into a special series of electrical transcriptions available in the United States to county medical societies about Sept. 15, 1951 on the usual basis of distribution of the electrical transcriptions prepared by the Bureau. This series will be entitled "The Doctor's Report."

SPECIAL BROADCASTS

The Bureau handled radio coverage for the Annual Congress on Medical Education and Licensure, held in Chicago in February, 1951. Ten visiting medical leaders and three members of the American Medical Association headquarters staff participated in four roundtable discussions, two radio interviews, a television show and two newscasts.

LOCAL RADIO BROADCASTS

Eighteen local broadcasts were given by the staff of the Bureau in connection with meetings they were attending in other cities and in Chicago.

HEALTH AND FITNESS DIVISION

The Health and Fitness Division now functions as an integral part of the Bureau of Health Education. Services to state and local medical societies and to educational, public health, voluntary and governmental agencies continue to be centered in the various fields of school health—school health services, school health education and healthful school living. The consultive team, consisting of a physician and educator, has aided materially in making the Association's services in this area acceptable to all of the professional interests involved.

During the past year the two consultants accepted invitations from 20 states and the District of Columbia to deliver addresses, take part in conferences or institutes, attend annual meetings of health, educational or other organizations and perform a variety of other services. In addition, Dr. Dukelow made several trips to Washington, D. C. to continue work begun earlier in 1950 on the Fact Finding Report for the Midcentury White House Conference on Children and Youth. He was also active in planning and conducting meetings at the Conference besides arranging for a preconference orientation session for physicians and medical ociety representatives who were delegates to the White House nference. Dr. Hein worked closely during the year with a i Conference of representatives of the National Council of i f State School Officers and the Association of State and erritorial Health Officers in the development of a statement on responsibilities in school health services and served on the editing committee of the group.

The Third National Conference on Physicians and Schools is to be held at Highland Park, Ill., Nov. 6 to 8, *1951*, in response to numerous requests for the repetition of this Conference at two-year intervals. The Conference will be attended by representatives of interested national agencies and organizations as well as delegates from state and territorial medical associations, and health and education departments. The discussions will center on the relationship of the family physician and the school physician to school health services in health appraisal, follow-up of health needs of school age children, physical education including athletics, emergency care of injury and sudden illness and communicable disease control, and the implementation of these services at the state and local level. Several state and local conferences are scheduled to be held on the same subject, partly because of the encouragement this office has given to state and local groups to carry on the same thinking at home, and partly because of their interest in the reports of the National Conferences.

A nation-wide survey of school health services by means of a questionnaire to the secretary of each local medical society was completed early in the year. The consultants jointly reported the results of the survey at the 1950 annual meeting of the American Public Health Association. Copies of the complete report are available from the Bureau.

An additional study on the nature of medical school teaching of school health subjects and physician attitudes toward school health services is now under way. The survey is being conducted by means of interviews with professors of preventive medicine or other appropriate faculty members at medical schools. To date interviews have been completed at eight institutions. Because of the nature of the study and the relative slowness of the interview procedure the investigation is regarded as a long-term project which will no doubt require a number of years to complete.

The Consultants have continued to provide assistance to th Joint Committee on Health Problems in Education of the N tional Education Association and the American Medical Ass ciation, as technical assistants to the several subcommittees. Th Educational Consultant, Dr. Hein, is a member of the Joi *Committee and its Secretary.*

The Medical Consultant, Dr. Dukelow, has served in a co sultive capacity to the Council on Medical Service's Committ on Maternal and Child Care. This arrangement has made po sible close liaison between the activities of the Council in th field and those of the Bureau of Health Education in relati to school health programs.

Health education films, particularly those used for visual ed cation in the schools, are an important educational medium. T Consultants review all such films coming to the Committ on Medical Motion Pictures to determine their technical a curacy and applicability. In addition they have aided vario producers in the preparation of films and film strips for scho use on health education subjects.

An important part of the consultation services are given the conferences and institutes conducted by universities, teache colleges, state departments of health and education and oth agencies to improve the understanding of school health servic and school health education.

The Educational Consultant was appointed by the Board Trustees to represent the Association at the National Conferen on Physical Education for Elementary School Children held January of the past year where he served as Chairman of t Editing Committee. The Conference report presenting the co bined viewpoint of parents, educators, specialists in child heal and other interested groups has been described in an editor in *Today's Health*. Similarly the Medical Consultant has p ticipated in the activities of the American Academy of Pediatr in its consideration of health problems in children's recreatio camps and the revision of health examination forms used in su places.

As a means of promoting interprofessional and interagen relations between the American Medical Association and educational and health agencies concerned with school heal community organization and health promotion, both Consulta are active in the work of many associations.

For the fifth year the consultants have prepared discussi questions on the articles in *Today's Health* to aid teachers using the Association's health magazine as classroom hea education material. The questions are developed for each is published during the school year and sent to all interes schools.

The two exhibits on school health prepared in previous ye are still in demand and are available for showing at ann meetings and conferences of interested organizations.

BUREAU PUBLICATIONS

Based on Order Department reports, the distribution Bureau publications showed a significant increase this year. total of 534,977 stock pamphlets and reprints of *Today's Hea* articles were distributed.

Pamphlet advertising and promotion were given special att tion during this period. By authorization of the Board of Tr tees, advertising space was contracted for in outside publicati and six two-thirds page insertions were made in *Today's Heal* While the direct sale of pamphlets from the advertising coup was not substantial, catalog requests from the "Free For T Asking" columns were encouraging. Coupon sales represent dividual orders, partly from teachers and industrial nurses w are prospective quantity purchasers.

Apart from advertising, the main pamphlet promotion eff was an industrial promotion campaign to reach nurses in ind try for the large scale purchase of Bureau publications a subsequent distribution among industrial employees.

Forty-six new publications were added in the past year, cluding two mental hygiene booklets on infants and oldsters w pictures and captions in the "White Collar Zoo" style. Speci inexpensive, throw-away dodgers on heart disease, colds, good foods and weight reduction were prepared for use at state fairs and similar meetings. Twenty pamphlets were revised and three discontinued.

COOPERATIVE RELATIONSHIPS

National Conference on Cooperation in Health Education.—The annual meeting was held at the Cleveland Health Museum, Jan. 25 and 26, 1951, and was concerned mainly with the discussion of relationships of member agencies to various phases of health education work.

U. S. Children's Bureau Advisory Committee on Maternal and Child Health and Crippled Children's Services.—No meeting of the Advisory Committee was held during the year. The Committee had several *ad hoc* meetings of technical people on specific subjects. A five-day joint meeting with staff members of the Public Health Service, the Office of Education and the Children's Bureau was held during the week of Jan. 8, 1951, to discuss school health services.

American Public Health Association Committee on Professional Education.—This committee continues its work in the development of standards of education and performance for public health personnel, accrediting of schools of public health and attacks on the grave questions of personnel shortages, insecurity of tenure, political domination and inadequate remuneration, which seem to be the major obstacles toward the recruitment of properly trained personnel in adequate numbers. The annual meeting was held in St. Louis, Oct. 30, 1950.

American Association of School Administrators.—The second meeting of the Yearbook Commission to revise the 1942 Yearbook "Health in Schools" was held at American Medical Association headquarters in March. This Yearbook will be more of a rewriting than a revision, but like its first edition the book will contain material and will recommend policies and procedures highly acceptable to physicians. The book is scheduled to appear in November 1951.

National Committee on Boys and Girls Club Work (4-H Clubs).—The work of this committee proceeded as usual, with the annual meetings in December. The membership in Four-H Clubs continues to grow, and emphasis on the health aspects of the program is strong.

National Society for the Prevention of Blindness.—Meetings of the Board of Directors, on which the Director of the Bureau serves as a member, were held in New York, Dec. 14, 1950 and April 26, 1951.

American Diabetes Association.—The Director continues as liaison representative of the American Medical Association to the Board of Directors of the American Diabetes Association and has participated in policy discussions relating to the plan of organization, the early diagnosis campaign, and the educational activities of the Association.

American Cancer Society.—In November, 1950, the Director of the Bureau requested the Board of Trustees to withdraw his name from the Professional Education Committee of the American Cancer Society and substitute for him someone qualified in the field of medical education rather than health education of the public. The Board of Trustees appointed Dr. A. F. R. Andresen, Brooklyn, N. Y., to replace the Director.

National Congress of Parents and Teachers, Advisory Committee on Health and Summer Round-Up.—A meeting of this Advisory Committee was held in Chicago, April 17, 1951. The purpose of this meeting was to review material on health contained in the national chairman's "Plans of Work, 1949-52" with the idea of incorporating changes for publication in the next edition, to be printed in the Spring of 1953, as well as to review the more popular pamphlet on the Summer Round-Up of the Children. It was agreed that "Plans of Work" should include immunization against tetanus and a more specific definition of the age at which the various immunizating agents should be administered. It was agreed that an effort should be made by the subcommittee to obtain an acceptable joint opinion on the age of immunization from the American Public Health Association, the American Academy of Pediatrics, the American Medical Association and the U. S. Public Health Service. The importance was emphasized of good health appraisal practices and the possible conservation of physician time by allowing a single examination of health appraisal to serve for the school examination, preparation for athletic and physical education activities, preparation for camps and all of the other activities preceded by physical appraisal.

National Committee for Traffic Safety.—The Director of the Bureau was appointed to the Executive Committee of the National Committee for Traffic Safety. A meeting was held in Washington, D. C. on June 15.

Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.—The Committee, which was established in 1911 at the suggestion of the American Medical Association, this year celebrated the 40th anniversary of its founding. Now composed of five representatives of each of the present organizations appointed by their respective governing bodies, its chief function is to consider principles and policies and to make recommendations on problems affecting the health of children and youth.

The annual meeting of the Committee was held at American Medical Association headquarters, March 12 to 14, 1951. Among problems considered were methods of keeping current the more than twenty publications which the Committee distributes, completion of a new brochure on the health aspects of physical education and initial action toward the development of a book on school health services. The latter project, approved by the governing boards of both associations, is to be a companion volume for the authoritative text "Health Education" first produced by the Committee in 1924 and revised several times since that date. Interim subcommittees to take appropriate action on this project and other problems were appointed to function between annual meetings of the group.

Publications of the Joint Committee, including the 1948 edition of Health Education, are available from either the American Medical Association or National Education Association.

The Committee recommends that: (1) Physicians, educators and public health personnel be urged to submit pertinent school health problems to the Committee for consideration and appropriate action; (2) Extensive use of the recommendations of the Committee be made as a means of guiding the development of school health programs along sound lines; (3) Every effort be made to stimulate wider distribution of the publications and statements of policy adopted by the Joint Committee, and (4) Education and medical groups be encouraged to establish cooperative relationships at state and local levels to provide for joint action in improving school health programs.

Cleveland Health Museum.—The Director of the Bureau was reelected to the National Advisory Council by the Board of Trustees of the Cleveland Health Museum at its May, 1951, meeting.

United States Government Agencies.—The Bureau continues to cooperate by correspondence, or otherwise, with numerous government agencies, to which materials or information have been furnished during the past year.

MISCELLANEOUS

A new committee on protection of research was appointed by the Board of Trustees to consist of the Secretary of the Council on Medical Education and Hospitals, the Director of the Bureau of Legal Medicine and Legislation, the Director of the Bureau of Investigation and the Director of the Bureau of Health Education. This committee is in addition to and does not replace the previous Committee for the Protection of Medical Research. With the advice of these two committees, the Bureau revised the rules governing care and use of animals in scientific research laboratories. A supply of the revised rules is in stock and available for distribution on application to the Bureau of Health Education.

Report of the Bureau of Investigation

During the year ended Aug. 31, 1951, the Bureau of Investigation has made particular effort to cooperate in the public relations field by bringing its message on the evils of nostrums and quackery direct to the consumers in the form of lectures and public exhibitions.

The Director has appeared before Kiwanis and Lions clubs, church groups, parent-teacher associations, trade groups, women's clubs, chambers of commerce and a county medical society, presenting an illustrated lecture on Mechanical Quackery. New kodachrome® slides have been prepared and new gadgets have been added to the collection, which are demonstrated. There have been 45 such presentations, for the most part in and near Chicago. These have been particularly well received. Each talk has been prefaced by a thumbnail description of the organization and the functions of the American Medical Association as they apply to the physician and the lay person. A paper on current campaigns against medical quackery was read before the Federation of State Medical Boards in February. The Director also appeared on television and radio on quackery subjects early this year.

In cooperation with the Bureau of Exhibits, a newly designed exhibit of fake medical devices was shown to large audiences at the Missouri and Indiana state fairs. These showings were under the auspices of the state medical society, and excellent cooperation from the state secretaries made the exhibits particularly effective. The older exhibit was shown at French Lick, Ind., at the meeting of the Indiana State Medical Association in September, 1950.

During the year the facilities of the Bureau have been used by popular magazine writers seeking data on particular cures or products claiming to have therapeutic worth in the proprietary field.

Four reports were published in THE JOURNAL under the auspices of the Bureau this year. These reports have been less frequent than in years past, but the subjects have been reported primarily on the basis of interest shown by way of inquiries on the subject. It is planned, however, to have more frequent Bureau reports on items of current interest in THE JOURNAL and *Today's Health* in the future.

The Bureau has continued its regular function of answering inquiries on the subjects on which it maintains files of information. More than 3,600 letters were sent out, giving such information on approximately 4,300 subjects. Physicians constituted the largest single number of inquirers, and inquiries from sufferers or their families or friends were the next largest category. Other groups included government agencies, newspapers and magazines, Better Business Bureaus, students and teachers.

The greatest number of subject inquiries was on the cancer quacks. These men appear to be doing a land office business. Several new treatments for cancer have made their appearance, and some of the older ones are more active than ever before. None of these, however, has any proved scientific merit. Second in volume of inquiry have been the vitamins, which currently are being promoted heavily as magic cure-alls in newspaper and other advertising. Rheumatism "cures" and reducing preparations follow in order of frequency.

During the year the Bureau has had considerable turnover in clerical assistants. As a result, the work of the Bureau has been hampered, but every effort is made to answer all inquiries promptly and to investigate any new "cures," treatments, and ideas when their existence is brought to light, usually by inquiry. This work appears to be effective from a public relations standpoint, and every effort is being made to maintain the position which the Bureau has had in the past.

Report of the Bureau of Exhibits

The activities of the Bureau of Exhibits include (1) the Scientific Exhibit at Annual and Clinical Sessions administered by the Committee on Scientific Exhibit of the Board of Trustees; (2) arrangement for Section meeting rooms at Annual and Clinical Sessions in cooperation with the Council on Scientific Assembly; (3) Association exhibits depicting the activities of the American Medical Association at medical meetings, fairs and expositions, in cooperation with the various Councils and Bureaus of the Association; (4) motion pictures, administered by the Committee on Medical Motion Pictures and (5) miscellaneous activities.

THE SCIENTIFIC EXHIBIT

CLINICAL SESSION—CLEVELAND

The Scientific Exhibit at the Cleveland Clinical Session was not large, consisting of 70 exhibits and demonstrations, but it elicited much favorable comment. Space was available to give each exhibit the necessary facilities, and wide aisles prevented overcrowding. Among the popular features were the manikin demonstrations on problems of delivery, the informal talks on diabetes, the fracture demonstrations and a group of exhibits c cancer.

Motion pictures were shown in a room adjacent to the hibits, 14 carefully selected films being shown once each d The entrance to the motion picture theater was next to that the television theater, thus allowing physicians the opportur of comparing the relative merits of these two forms of vis education.

Following the meeting, a questionnaire was prepared in operation with the Council on Scientific Assembly and sent 500 physicians who had attended the Cleveland Session, names being selected at random from the registration cards.

From 347 questionnaires returned, there were 347 replies c cerning the Scientific Exhibit. Apparently every physician atte ing the Session visited that feature. The replies indicated 5% did not attend any lecture, 10% did not see television 22% did not see any motion pictures. The Scientific Exh was rated "excellent" or "good" by 92% of those who atten on the same basis, physicians who attended other features ra "excellent" or "good" the general lectures and clinical prese tions 90%, the motion picture program 88% and the televis program 80%. Physicians appreciated the opportunity to disc their problems with exhibitors and demonstrators.

THE SCIENTIFIC EXHIBIT

ANNUAL SESSION—ATLANTIC CITY

The Scientific Exhibit at the Atlantic City Session was of the largest in the history of the Association and, in gene *quality of material and in teaching value*, was one of the b The location on the lower level of Convention Hall allowed wider aisles, less crowding and a general atmosphere of seri study. In spite of certain disadvantages, the arrangements seem to meet with general approval.

There were 436 signed applications for space, besides nur ous inquiries which were discouraged because of no possib of space being available. Two hundred and ninety-seven exh were shown in 306 booths.

There were several popular features. A group of exhibit overweight, nutrition and health, together with a question *answer conference, was shown for the first time. Another* presentation was a group of exhibits on noise in industry. fracture exhibit, the fresh pathology exhibit and the dial conferences, all of which have been repeated many times, as popular as ever.

The Section representatives to the Scientific Exhibit rend a vast amount of assistance in the procurement and selectic outstanding exhibits. Each Section had a group of exhibits taining to its specialty, but the endeavor was to make the of interest to the physician in general practice rather than specialist.

Motion pictures were shown as part of the Scientific Ex program in two large rooms on the main floor of Conve Hall, adjacent to the Technical Exposition. Thirty-eight were presented once each day during the week, with the au of 11 films being present to discuss them. The films were sel with the cooperation of the Committee on Medical M Pictures from more than 100 applications, and all of the were previewed by competent authorities. The attendance excellent, several hundred persons often being present t the most popular films.

The Committee on Awards, consisting of Drs. O. P. J. St. Louis, Chairman; Keith S. Grimson, Durham, N. C.; H. Holinger, Chicago; Leonard A. Scheele, Washington, D and W. Walter Wasson, Denver, awarded seven medals— gold, two silver, and two bronze. In addition, a certificat merit was awarded to the best exhibit in each Section, toge with one or more honorable mentions.

Numerous recommendations were made by visiting ph cians for some method to preserve the vast amount of scien information collected in the Scientific Exhibit. The Commi on Scientific Exhibit has these recommendations under sideration.

ASSOCIATION EXHIBITS

The Bureau of Exhibits has endeavored "to promote science and art of medicine and the betterment of public heal by exhibits showing the activities of the various Councils ureaus of the American Medical Association on subjects in hich those departments are interested. The list of exhibits vailable for loan purposes includes 49 subjects. During the ar, several new exhibits were built, while others were refurished and brought up to date. Several exhibits were disconnued and others will soon be worn out and must be replaced. ssociation exhibits have been scheduled for the year at 75 eetings and other gatherings. During the first six months of 51, they were shown for a period of 708 days in 28 states and laska. The Bureau continues to advise and assist state medical ssociations in the preparation of their own exhibits when quested.

Medical Exhibits.—Medical exhibits have been scheduled for 0 meetings of medical societies or other scientific organizations. each instance a qualified demonstrator accompanies the khibit, usually a member of the Council or Bureau whose work being shown.

In cooperation with the Secretary's Office, the Council on edical Service, Council on Medical Education and Hospitals, epartment of Public Relations and other departments of the ssociation, the Bureau of Exhibits has developed an extensive xhibit entitled "You and Your A. M. A." The exhibit was creted especially for showing at state medical society meetings to quaint members with the services available from the American edical Association, its functions and health education and ublic relations activities. The exhibit is staffed by representaves from the central office who are thoroughly familiar with e American Medical Association. The exhibit forms a part of integrated program to bring the American Medical Assocition to its individual members.

Health Exhibits.—Health exhibits at fairs and expositions ontinue to be popular. State and county medical societies, or rganizations which are approved by such medical societies, orrow the exhibits and demonstrate them. Only rarely does representative from the headquarters staff accompany an khibit, the chief exception being the exhibit on mechanical uackery.

During the year, health exhibits were scheduled for 45 fairs nd expositions with audiences running into the hundreds of ousands. The serious search for health information by visitors fairs and expositions, and the appreciation expressed by such isitors, attests to the value of this method of health education. he opportunity of reaching large numbers of persons who are a receptive mood is most valuable.

County and state medical societies approaching their fiftieth, venty-fifth and centennial anniversaries seek the counsel of e Bureau in the presentation of Halls of Health, Health Cennnials and similar public demonstrations. The Bureau is happy be of assistance to the societies since such an event offers an ccellent opportunity for the profession to discharge its avowed jective to promote "the betterment of public health" and to ail itself of the opportunity to execute an excellent public lations program.

Health Museums.—The Association has on semi-permanent an several health exhibits to health museums in Chicago, leveland, Washington, D. C., and Dallas, Texas, in addition the health exhibits listed above. The outstanding health useum in the United States is the Museum of Science and dustry in Chicago. That Museum has devoted several thounds of square feet of floor space to health exhibits which e on display seven days a week throughout the entire year. e attendance of school groups, tourists and other visitors from e United States increases the total attendance each year to arly two million. The health exhibits are supervised by a edical committee of which Dr. A. C. Ivy is chairman, and the irector of the Bureau of Exhibits serves as executive director.

Health museums in other cities are under consideration and ery assistance within the resources of this Bureau will be ven to them.

COMMITTEE ON MEDICAL MOTION PICTURES

The many and varied services offered by the Committee on edical Motion Pictures have been enlarged and expanded and assistant and an additional typist were added to the staff.

Film Library.—Eight new films were added to the motion cture film library, the revised catalog now listing a total of 62 subjects. Copies of the new catalog were sent to the secretary of each county and state medical society and woman's auxiliary and to the dean of each medical school. Fourteen hundred forty-eight film shipments were made to various medical groups.

Film Reviews.—One hundred eight motion picture reviews were released to the Editorial Department, 98 of which have been published in The Journal. This represents a 27% increase in number of reviews published in 1950. A supplement to the second revised edition of the Booklet of Reviews was prepared, including all reviews published in The Journal during 1950. Complimentary copies were sent to the secretary of each state medical society and to the dean of each medical school and were also made available to county medical societies.

Film Source File.—The source file of medical motion pictures now contains information on over 2,500 films. This continues to be the basic source of information from which the committee is able to provide answers to the many hundreds of inquiries received each year from individual physicians, medical societies, medical schools and other scientific groups. During the past year, it was completely revised and expanded and a new section added, listing the addresses of all state health departments which maintain film libraries.

The mimeographed lists of films on special subjects total over 100 in number. These lists are constantly being revised and kept up to date. Film catalogs from all state health departments are on file and are used to direct requests for specific health films to local sources.

Special Projects.—Preliminary investigations on the effectiveness of motion pictures in medical education will be conducted through an appropriation of $2500.00 from the Board of Trustees. A research subcommittee of educators, audiovisual specialists and educational psychologists will be appointed in order to establish basic criteria under which controlled research studies might later be conducted in medical schools.

A cooperative program for cataloging films has been agreed on by the Committee on Medical Motion Pictures of the American Medical Association, the motion picture committee of the American College of Surgeons, and the Medical Film Institute of the Association of American Medical Colleges.

The secretary of the committee visited Mexico City in February at the request of the American Embassy in Mexico. The purpose was to explain to the medical profession of Mexico City, the motion picture program of the American Medical Association, to discuss the use of motion pictures in medical teaching and to explore the possibilities of making medical films more readily available to the medical profession in Mexico.

The Committee has prepared a list of fifty American made motion pictures at the request of the British Medical Association, which would be of special interest to the general practitioner of Great Britain. The British Medical Association is considering the possibility of including these films in their motion picture library.

Surveys.—During the past year, the Committee has conducted several important surveys, the purpose being to promote the effective use of motion pictures, to determine the extent and use of films within the various branches of medicine and to discover some of the problems which retard the expanded use of this medium.

1. A preliminary survey of health films cleared for use on television was made in response to requests from groups such as state and county medical societies. The results indicated that there was a need for a more detailed and expanded list of such films. A second survey of 81 sponsors and producers was carried out, and a list of 179 films was prepared with instructions for ordering the films. Copies were sent to the secretary of each state medical society and woman's auxiliary, to the program director of each television station and to more than 400 other persons who requested the list. Realizing that the value of the list would be enhanced if each available film were screened and critically evaluated, the Committee, in cooperation with the Bureau of Health Education, has begun a systematic evaluation program.

2. A questionnaire to determine which pharmaceutical houses sponsor films, how they distribute them and their attitude and policy relative to distribution to foreign countries was sent to 170 pharmaceutical companies. The replies contained much

practical information relative to films previously unknown as well as specific information which will prove to be valuable source material for the Committee as it is increasingly consulted by sponsors and producers on problems of production and distribution.

3. A series of questions relative to the use of motion pictures in medical schools was included in the recent survey conducted jointly by the American Medical Association and the Association of Medical Colleges. The Committee on Medical Motion Pictures received permission to extract this information from the completed questionnaires submitted by 41 medical schools. In general, the results indicated that there is no longer a lack of projection equipment or personnel to operate the equipment. Further, it appears that the main problem encountered centers about a lack of good films, especially in certain subject areas, and to a lesser extent the lack of interest in this medium by certain of the faculty members. The results quite definitely point toward a need for better planning of production in the medical motion picture field.

Other Projects.—The motion picture entitled "They Also Serve," prepared by the American Medical Association in 1949, was shown on a CBS television program under the sponsorship of the Civil Defense Administration. A copy of this picture has been purchased by the Administration for regular showings at the Civil Defense Staff College in Washington, D. C.

MISCELLANEOUS ACTIVITIES

Members of the staff have given unstinted service on numerous matters connected with visual education, both in graduate medical instruction and in health education. They have had numerous conferences with representatives of medical societies in the United States and in foreign countries. They have lectured, prepared material for publication, served on committees and reviewed books for THE JOURNAL and *Today's Health.* They have cooperated with the other Councils and Bureaus of the Association, integrating activities so that the American Medical Association is a complete unit.

The sixth edition of the Primer on Fractures was published during the year.

Report of the Bureau on Medical Economic Research

The demand for publications of the Bureau of Medical Economic Research was not as great during the 12 months ending Sept. 30, 1951, as it had been during the preceding 12 months, but the number of items published was greater. During the past 12 months Bulletins 79 to 86 and miscellaneous items M-38 to M-53 were published.

During the year now ending, 187,000 copies of Bureau bulletins and 186,000 copies of miscellaneous items were sent out to medical societies, physicians, schools, various organizations and individuals. The total, 373,000, compares with the total of 479,000 reported for the year ending Sept. 30, 1950. This decrease apparently reflects the decline in public interest in controversial aspects of medical economics.

SUMMARY OF PUBLICATIONS

Since the primary function of the Bureau is research, a brief summary of the publications will describe most of the work of the Bureau during the past year. A one sentence summary of each publication, by number, follows: (79) Continuing the downward trend, in 1949, for the first time, a large nation, the United States of America, lowered its maternal mortality rate to slightly below the apparently irreducible minimum of one death per 1,000 live births; (80) this new bulletin on medical service areas gives the population, square miles and primary centers of each area and includes a medical service area map of the United States; (80A) this supplement to Bulletin 80 lists the towns by medical service area numbers in those counties which are divided into two or more medical service areas; (81) supply of physicians' services—increased output of physicians through better roads, transportation and communication, technological progress, medical auxiliary personnel, decline in house calls and cooperation between physicians; proved medical progress in such fields as maternal mortality, infant mortality and life expectancy; and the lack of undue rises in physicians incomes indicate there is no nationwide doctor shortage; (82) seven representatives of different types of blood banks in widely scattered cities related their experiences in the establishment and operation of their ba guides to community leaders who are trying to choose th of blood bank best suited to their communities; (83) this s survey of blood banks presents revised national estima blood used by hospitals, in direct transfusion, blood ob for storage, and normal and emergency bleeding capacity, with a directory of hospital blood banks, non-hospital banks, and Red Cross Regional blood centers; (84) 30,000 in the survey of the 1949 incomes of physicians, unde jointly by the Bureau and the U. S. Department of Com indicate that physician incomes have increased about as as the average income of the American people during in with the increase resulting from better collections, greate put per physician" through use of technical help and a mo rise in fee schedules; (85) this annotated bibliography of and books on group practice, 1927-1950, is a revision of B 63; (86) since the price of medical care had risen by 195 48% above the 1935-1939 level while the cost of living ros medical care in terms of the purchasing power of the doll 14% cheaper in 1950 than in 1935-1939.

The short items, usually multigraphed or multilithe termed miscellaneous (M); some of them are reprints of paper items about Bureau publications. (M-38) includes bank developments from July 1 to October 1, 1950, the the "Boston Agreement"—an agreement covering interre in time of peace and of national emergency between the can National Red Cross, the American Medical A the American Association of Blood Banks and the Am Hospital Association—and the texts of the official assig given the Red Cross by the Department of Defense a National Security Resources Board, together with the ances by the American National Red Cross; (M-39) a of the *Chicago Daily News* article quoting the American cal Association view that mass blood typing is inadv (M-40) a letter from Dr. Andrew C. Ivy, concerning mass typing and an answer by Dr. Leonard W. Larson, Chair *the Committee on Blood Banks; (M-41) reproduces the* from the *Bay City Times* (Michigan) stating that Surgeo eral Leonard A. Scheele believes mass blood typing w a waste of time; (M-42) a reprint of a *Champaign-* *Courier* account of a local address by Senator Paul H. during the local campaign attacking the AMA lobby; the evolution and growth of voluntary health insurance *their advantages over compulsory plans and former* p ment methods, and their present limitations are given; the Report of the Committee on Blood Banks and the of the Reference Committee on Emergency Medical approving the committee's findings and recommen (M-45) a letter from Dr. George F. Lull to *Collier's*, su by a chart, refutes the claim of the *Collier* article tha is an alarming doctor shortage; *(M-48) letter to the edit* menting on the inadvisability of mass blood typing, re from *American Journal of Public Health;* (M-49) a lon by Dr. Paul I. Hoxworth, President of the American tion of Blood Banks, showing the difficulties encount carrying out the terms of the "Boston Agreement" a gesting ways by which blood banks may solve their loc lems; (M-50) a paper read by the Director at the Marc meeting of the Fraternal Actuarial Association—since 1 population of the United States has doubled through progress and other improvements but in the same per number of persons 65 years of age and over quadrupled, b three main social changes; (M-51) a reprint of an edit the survey of physicians' incomes from *The Sunday* (Philadelphia); (M-52) is a reprint of an editorial, "Keep Family Together" in THE JOURNAL Sept. 8, 1951.

OTHER ACTIVITIES

The Director made 19 addresses to a variety of organi and has supplied speech material to several physicians. S were delivered before meetings of the Woman's Auxiliary State Medical Society of Wisconsin, seventieth annual of the South Dakota State Medical Association, A Academy of General Practice and the seventy-third ann sion of the Montana Medical Association, and to cla Amherst College and Yale University. An address given the Thirty-Second Annual Clinical Session of the Americ ge of Physicians was scheduled to be published in the October 951 issue of the *Annals of Internal Medicine.* A paper given efore the Southern Conference on Gerontology at the Univerity of Florida was published by the University and reprinted s M-53 by the Bureau. The Director also addressed the 1950 nnual meeting of the American Medical Writers' Association; his address was published in the *Mississippi Valley Medical ournal,* January, 1951. The paper given before the 1949 Amerian Public Health Association Annual Meeting was published y the *American Journal of Public Health,* May, 1951, and also s M-43 by the Bureau. The Director assisted in arranging and articipated in two sessions on medical economics at the Deember 1950 meeting of the American Economic Association.

Cooperative activities with other headquarters' departments ontinue to expand. During the year 27 items were published in HE JOURNAL; these included book reviews, current comments, ditorials and articles. Four editorials were published in *Today's ealth.* A considerable number of manuscripts involving statisical procedures were submitted to the Bureau by the Editor of HE JOURNAL. Statistical aid was given to staff members of everal bureaus and councils. The Director continued to cooprate with the Director of the Bureau of Legal Medicine and egislation in efforts to provide tax relief for self-employed hysicians in making provision for their pensions.

The I. B. M. machines and personnel were used in the preparation of some of the longer tables in the Bureau's publications, articularly in the survey of blood banks. The random selection f the 125,000 physicians contacted in the survey of physicians' ncomes and the addressing of envelopes was an I. B. M. operaion. The tables in the Hospital and the Internship and Residency umbers of THE JOURNAL and many tables for the Committee n Research for its cancer study were prepared by the I. B. M. ection. *At the present writing it appears that before December* 1, 1951, the huge I. B. M. file on physicians, which is coextensive vith the Directory Department file and the Directory Supplenents, will be current; thereafter the continuing task will be to eep the file current. A duplicate set of punch cards on all hysicians in the United States, Canada and United States posessions, coinciding with the 1950 American Medical Directory as been sent for safe storage to a fire proof warehouse about 0 miles from American Medical Association Headquarters.

Report of the Assistant to the General Manager Department of Public Relations

A special committee consisting of Drs. Gunnar Gundersen, Chairman, Edwin S. Hamilton and B. R. Kirklin was appointed by the Board of Trustees in December 1950 to study the public relations facilities and program of the Association. As a result of the committee's study Mr. Leo E. Brown was placed in charge of the Department of Public Relations, as Director, on March 1, 1951, and Mr. Lawrence Rember, former Director, was named as head of Field Service for the Department.

PUBLIC RELATIONS COMMITTEE

Shortly after the special committee had made its report, the Board of Trustees established a permanent Public Relations Committee, to be composed of three members from the Board of Trustees and two from the House of Delegates. The present members are Drs. Gunnar Gundersen, Chairman, Edwin S. Hamilton, Walter B. Martin, B. R. Kirklin and Truman C. Terrell.

ADVISORY COMMITTEE OF STATE MEDICAL ASSOCIATION EXECUTIVES

An Advisory Committee to the Director of the Department of Public Relations, composed of executive secretaries or public relations directors of constituent state medical associations, was appointed in April 1951 to advise the Director on the public relations needs of the constituent associations and on the over-all public relations program of the American Medical Association. The members of this Advisory Committee are:

Mr. Harvey T. Sethman, Chairman, Executive Secretary, Colorado State Medical Society.

Mr. Charles S. Nelson, Executive Secretary, Ohio State Medical Association.

Mr. Hugh W. Brenneman, Public Relations Counsel, Michigan State Medical Society.

Mr. John Hunton, Executive Secretary, California Medical Association.

Mr. Richard H. Graham, *Executive Secretary, Oklahoma State Medical* Association.

Mr. Frederick W. Miebach, Director, Public Relations Bureau, Medical Society of the State of New York.

Mr. Charles H. Crownhart, Secretary, State Medical Society of Wisconsin.

Mr. Ray E. Smith, Executive Secretary, Indiana State Medical Association, who died reently, was also a member of the Advisory Committee.

The committee held three meetings during the year. Its sound advice and counsel were of inestimable value in the implementation of the 1951 public relations program and in outlining the program for the coming year.

PUBLIC RELATIONS OBJECTIVES

The objectives of the American Medical Association public relations program during 1951 were threefold: (1) To serve and to inform adequately the members of the American Medical Association of the true ideals of the Association and the value of membership therein, thus soliciting their active support of its policies and program; (2) to convince the public that the medical profession is not only sincerely and actively concerned in seeing that high quality medical care is available to each community but also sincerely and actively concerned in seeing that such care is available when and where needed at a cost in keeping with each individual's economic status or without cost in unusual and extenuating circumstances, and (3) to encourage and assist state and county medical societies to continue and expand their public relations activities thereby cementing physician-patient and community relationships at the grass roots.

PRESS RELATIONS

The Press Relations Department in the last year functioned on a broader scale than ever before. Demands of newspapers and radio stations for constructive medical news continued to increase, with the result that the department's weekly news releases found wider public outlet the nation over. The News Release now is sent to 1,350 newspapers, magazines, wire services and science writers across the country. More newspapers assigned full-time men to medical reporting, and these looked to the American Medical Association for authoritative information. This was especially apparent at the annual meeting in Atlantic City which was attended by 79 writers representing 59 publications.

This wide dissemination of scientific advances in medicine played an important role in the fight against socialization. It gave editors constructive material which demonstrated to the public that the health of the people is being protected by the medical profession under an American system of enterprise.

Scientific articles in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, *Today's Health,* and the various specialty journals were given wide publicity. The activities of the Association were reported. Meetings of councils, committees and bureaus were publicized nationally.

What the medical profession is doing to increase the supply of doctors, to expand medical education, to eliminate grievances and to provide emergency services was well played up in newspapers and magazines and on radio all over the country. The information was supplied largely by the Department of Public Relations.

MAGAZINE RELATIONS

In 1951 national magazines devoted more and more space to articles on medicine and health. To keep pace with this trend, the Public Relations Department placed new emphasis on service to magazine editors and writers. In the first nine months of the year 58 editors and free lance authors received special assistance with writing projects. Articles written by these authors appeared in 35 mass circulation magazines with almost every top-ranking national publication represented. A manuscript review service inaugurated during the year offers a pre-publication check of magazine articles by American Medical Association staff physicians. Twelve medical articles were submitted for this check on accuracy, and the majority of the suggestions offered were adopted.

SESSION DAILY BULLETIN

In June 1951 the Public Relations Department assumed responsibility for the Daily Bulletin published during annual and clinical sessions of the American Medical Association. To make it a more effective public relations tool, the Daily Bulletin was issued in the form of a tabloid newspaper with special attention given to topography, layout and news coverage. Spot news photographs of Session events and personalities appeared in each issue.

FIELD SERVICE

The addition of a full-time Director of Field Service made it possible for the Department of Public Relations to serve more adequately the constituent state medical societies. During 1950 members of the Public Relations staff visited 31 state medical societies and numerous county societies, assisting in the planning and implementation of their public relations programs and discussing the goals, services and accomplishments of the American Medical Association.

A demonstration public opinion survey was conducted in Decatur and Macon County, Ill. The survey included personal interviews with 125 community leaders and 175 households. Questioned on the medical care received, its cost and quality, attitudes about doctors, the medical society and the health institutions delivering medical care, Macon County residents revealed the most common medical public relations problems. The results provided the American Medical Association with a test check against its own evaluation of public thinking. The survey report was made available to county medical societies for comparison, evaluation and guidance in conducting similar studies.

The Field Service program has received the commendation and appreciation of constituent associations served. Greater demands are being made for this service, and every effort is being exerted to comply.

LITERATURE

This year the Department of Public Relations has gone into the production and mass distribution of literature for the first time. The department produced two pamphlets. One, "A Doctor for You," designed for the general public, tells the story of the profession's efforts to graduate more and better physicians. Over one-half million copies have been distributed to people in all parts of the country.

The second pamphlet, "It's Your A. M. A.," was designed for physicians, and conducts the reader on an imaginary tour of Association headquarters, acquainting him with the many services the American Medical Association renders to its members. This pamphlet was mailed to all physicians in the United States. It will also be sent to all new members on receipt of their dues.

In addition to these two pamphlets, the department published a comprehensive "Guide to Services of the American Medical Association." This revision of the American Medical Association Handbook, containing many new features, will be brought up to date annually. It is intended primarily for officials of state and county medical societies and other organizations which have frequent contact with the Association.

The Department of Public Relations also made good use of an excellent crop of popular magazine articles, reprinting and distributing them widely. These were "Your Doctor for a Friend" and "What About This 'Doctor Shortage,'" both by Paul de Kruif and both reprinted from *Reader's Digest;* "The Doctors Clean House," by Alice Lake, reprinted from the August *American Magazine;* "How to Get a Doctor," by John E. Eichenlaub, M.D., reprinted from the April *Farm Journal;* "I'm a Doctor and I'm Human," by Robert K. Webster, M.D., as told to Greer Williams, reprinted from a fall 1951 issue of the *Saturday Evening Post,* and "A Doctor as Near as Your Telephone," by William F. McDermott, reprinted from the November, 1951, *Reader's Digest.* Approximately 3,000,000 pieces of literature were distributed to the profession and general public during the past year, including more than 1,000,000 copies of "What About This 'Doctor Shortage.'"

PR DOCTOR

PR Doctor, the bimonthly medical public relations news letter published by the department, has continued to promote public relations programs on the state and county levels during 1951. The medical man's own public relations piece, *PR Doctor* ou lines medical public relations goals, transmits public relatio ideas of other medical societies in case history form and offe guidance on public relations methods and materials. More th 1,400 state and county medical society executive secretarie state public relations chairmen, state presidents, medical pub relations personnel, American Medical Association officers a trustees, members of the House of Delegates, state medical jou nal editors and allied groups receive the news letter. The e change packet, which carries samples of materials described the news letter, is distributed to a limited mailing list of st and county medical society executive secretaries. As the res of many requests, the news letter mailing will be stepped up between 2,500 and 3,000 in 1952 to cover every state and cour medical society in the nation.

SERVICE TO COUNCILS, COMMITTEES AND BUREAUS

Throughout the year the department is called on to public activities of American Medical Association departments, co cils, committees and bureaus and to counsel them on the pub relations aspects of their programs.

The following conferences were publicized via newspape magazines, house organs, radio and television: Rural Hea Conference; Industrial Health Conference; Congress on Medi Education and Licensure; National Conference on Medical Ci Defense; National Conference on Physicians and Schools, a annual meeting of the Student American Medical Associatio

PUBLIC RELATIONS CONFERENCE

The fourth annual Medical Public Relations Conference w be held prior to the Clinical Session in Los Angeles. This yea conference will highlight medicine's major public relations pr lems as revealed by a letter query of state medical associatio Answers almost unanimously listed the cost of medical care a physician patient relationships as the chief public relations he aches. Results of three public opinion surveys will be presen to inform the conference on what the general public thinks the medical profession and the medical services they recei Work sessions on prepayment and postpayment of medical bi catastrophic sickness insurance coverage, fees, itemized bills a waiting room problems are on the schedule. A transcript of conference proceedings will be made available to county a state public relations committees and other interested individu

OFFICE PLAQUE

Realizing that many of medicine's public relations probl are the result of misunderstanding, the department made av able to all physicians an office plaque which invites the pati to discuss services and fees frankly. The plaque reads:

To All My Patients

I invite you to discuss frankly
with me any questions regarding
my services or my fees.
The best medical service is based
on a friendly, mutual under-
standing between doctor and patient.

Physicians were encouraged to purchase this plaque at dollar and display it prominently in their waiting rooms.

INTRA- AND INTER-ASSOCIATION ACTIVITIES

During the year many special services have been rendere individual members and state and county medical societies. department has worked very closely with the Secretary and G eral Manager's office in determining the public relations po of the Association. It continues to assist the Secretary and G eral Manager in preparing the Secretary's Letter, one of important channels of communication to more than 3,200 tional, state and county medical leaders. The department has p formed many special services and provided assistance and s gestions in the preparation of speeches and articles for the offic and trustees.

Contacts with other key national organizations, associatio and institutions were cultivated during 1951. A concerted eff has been made to acquaint other national organizations with t objectives, program and accomplishments of the Americ Medical Association.

Dates of Future Sessions

The places at which annual sessions of the Association are to held is decided by the House of Delegates and the places for clinical sessions by the Board of Trustees. The dates for both sions are determined by the Board. Following are the places d dates of annual and clinical sessions from 1952 through 54:

Annual Session, 1952, Chicago, June 9-13.
Clinical Session, 1952, Denver, Colo., Dec. 2-5.
Annual Session, 1953, New York, June 1-5.
Clinical Session, 1953, St. Louis, Dec. 1-4.
Annual Session, 1954, San Francisco, June 21-25.
Clinical Session, 1954, Miami, Fla., Nov. 30-Dec. 3.

Conclusion

A supplementary report will be submitted to the House of elegates which will contain information that will not be avail-le until just prior to the opening meeting of the House.

Respectfully submitted,

Dwight H. Murray, Chairman.
Gunnar Gundersen, Vice Chairman.
Edwin S. Hamilton, Secretary.
Edward J. McCormick.
David B. Allman.
F. J. L. Blasingame.
Leonard W. Larson.
Thomas P. Murdock.
Walter B. Martin.
John W. Cline.
Louis H. Bauer.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

the Members of the House of Delegates of the American Medical Association:

The major concerns of the Council on Medical Education and ospitals during the past year have been with matters referred it by the House of Delegates, the securing of additional finan-al support for medical schools through the establishment of e American Medical Education Foundation and the National ınd for Medical Education, the negotiations to develop a joint ogram with other organizations for the accreditation and andardization of hospitals, problems arising from the Korean nflict and the resulting mobilization, the Survey of Medical ducation, problems relating to the internship, including the sparity between the number of internships and the number of terns, the matching plan for the appointment of interns and e broad problem of the status of the internship in modern edical education, and a revision of the Council's "Essentials of n Acceptable Medical School."

At the annual session in Atlantic City in June, 1951, the Coun-l submitted to the House of Delegates a special report on the licy of the American Medical Association regarding the pro-uction of physicians.

MATTERS REFERRED TO THE COUNCIL BY THE HOUSE OF DELEGATES

In June, 1951, the House of Delegates recommended that the ouncil continue its study of preceptorships. It can be reported ıat an increasing number of schools are conducting experiments ith various types of preceptorships. Earlier this year the Coun-il secured detailed information from the nineteen schools that ffer preceptorships and published a summary of this informa-on in the 1951 Educational Number of The Journal. The Sur-ey of Medical Education is also investigating preceptorships nd will present its findings in its final report. It is also planned devote an important part of the program of the 1952 Con-ress on Medical Education and Licensure to a discussion of receptorships.

The Council was also requested to study the problem of the ultiplicity of medical meetings with particular reference to the equirement of attendance at hospital staff meetings. The Coun-il is of the opinion that this problem is one which can be xplored most effectively at the time the newly established Joint ommission on Hospital Accreditation formulates its standards for hospitals seeking its recognition. At the time this report was prepared, the formation of the Joint Commission had just been authorized by the four cooperating organizations and there had been no opportunity to hold a meeting of the Commission. At the proper time in the work of the Commission, the Council will take up this problem and report further to the House of Delegates.

The resolution recommending that general practice residencies provide that at least eight of the 24 months be devoted to surgery and that four of these months should embrace operating room experience, which was referred to the Council for further study, is being considered in conjunction with a possible revision of the Council's essentials of residencies in general practice.

The resolution recommending that the Council distribute standards of qualifications for physicians permitted to apply radium in hospitals will be acted on by the Council at its meeting in December, 1951, at the time of the Clinical Session.

FINANCIAL SUPPORT OF MEDICAL SCHOOLS

Two important new developments have occurred in the past year which promise to contribute significantly to the solution of the acute financial problems that have beset the medical schools since the end of World War II. In December, 1950, the Board of Trustees appropriated a half-million dollars as a nucleus of a fund to be raised by the medical profession during 1951 for the unrestricted use of the medical schools. Shortly thereafter the Association formed the American Medical Education Foundation as a separate corporation to serve as the instrument for raising such a fund annually. The Council wishes to take this opportunity, however, to state its conviction that the establishment of the Foundation represents a notable move which offers promise of becoming of great importance and significance. At the same time the Council urges strongly that all physicians demonstrate their interest in and concern for the maintenance of high standards of medical education by contributing generously and regularly to the Foundation.

The other new development was the public announcement of the establishment of the National Fund for Medical Education. In its last three reports the Council has referred to its joint efforts with the Association of American Medical Colleges to enlist the support of leading citizens for the establishment of a national organization to secure voluntary funds for the support of medical education. After more than two years of preliminary planning and organization, this effort achieved its first goal on May 16, 1951, with the announcement of the establishment of the National Fund for Medical Education. This important new organization is sponsored by outstanding leaders from the fields of public affairs, business, industry, agriculture, labor, higher education and the medical profession. Its affairs are directed by a board of 66 distinguished trustees from all parts of the nation. It has as honorary chairman, former President Herbert Hoover and as president, Mr. S. Sloan Colt, the president of Bankers Trust Company, New York. The trustees are aided by an advisory council composed of leading university presidents, members of the Council on Medical Education and Hospitals and members of the Executive Council of the Association of American Medical Colleges. Mr. Chase Mellen Jr. is executive director of the Fund which has its offices at 475 Fifth Ave., New York.

The objective of the Fund is to raise annually from voluntary sources substantial sums for the support of the nation's medical schools. Emphasis will be placed on securing contributions from corporations and organized groups which it is recognized have to a large extent replaced individuals as the great potential sources of philanthropy in this country. The Fund hopes eventually to raise between five and ten million dollars a year for distribution to all approved medical schools for their unrestricted use.

The closest possible cooperation exists between the National Fund and the American Medical Education Foundation. The activities of these two organizations do not in any way duplicate each other but are intended to and, in fact do, complement each other in a logical fashion. The National Fund is conceived as an agency to raise funds on a wholesale basis from organized groups. The Foundation is designed to raise funds specifically from the medical profession. Indicative of the close relationship between these two groups is the fact that members of the Board of Directors of the Foundation serve on the advisory council of the Fund and that the Board of Directors of the Foundation voted this year to merge the funds it collects with those of the National Fund for distribution by the National Fund to the medical schools. By their combined efforts both organizations hope to provide continued substantial assistance to the medical schools that will greatly reduce the financial problems that have threatened their stability.

While the Foundation and the National Fund in their short history have been able to render only the most modest help to the medical schools, the efforts of the individual schools themselves have had sufficient success to warrant optimism that substantial progress is being made in securing more adequate financial support for medical education. For the coming academic year the medical schools report that their budgets will total $74,350,000 and that they expect to receive an additional $35,250,000 from outside agencies in grants for research and special teaching activities. The schools thus will have a total of $109,600,000 available for education and research during the coming year.

Earlier this year the Committee on Medical School Grants and Finances appointed by the Surgeon General of the Public Health Service published a report of a study it had made of the expenditures and the needs of the medical schools during the academic year 1947-1948. The committee reported that in that year the medical schools spent a total of $70,551,000 for basic operations and for separately budgeted research. This figure did not include the expense of maintaining clinical facilities. Of the total of $109,600,000 available to the schools for the coming year, about $3,250,000 will be used to support clinical facilities. This amount must be subtracted from the total to provide a figure that can be compared with the total expenditure as computed by the committee. When this is done it is seen that the medical schools expect to have available in 1951-1952 approximately $36,000,000 more than they spent in 1947-1948.

The Surgeon General's Committee estimated that the medical schools' unmet needs as of 1947-1948 could be financed only by the expenditure of about $40,000,000 more annually than the schools were then spending for education and research. The figures for the coming academic year indicate that the schools within the short space of four years have secured additional funds almost to the full amount of their need as estimated by the Surgeon General's Committee. It must be pointed out, however, that not all the increase of $36,000,000 is clear gain and that not all schools have shared proportionately. Part of the increase has been offset by loss in the purchasing power of the dollar; some of it has been used to support new or expanded activities not provided for in the estimate of $40,000,000. Account must also be taken of the fact that almost 40% of the gain of $36,000,000 is in the form of funds specifically earmarked for research and therefore not available for the schools' unrestricted use.

The overall picture, however, is one which warrants optimism that progress is being made even if unmet needs and some uncertainty regarding the future remain. Perhaps one of the most important conclusions to be drawn from the foregoing analysis is that the gap between unmet needs and available funds has been narrowed to a point where if the National Fund for Medical Education and the American Medical Education Foundation can provide an annual fund of from five to ten million dollars, the gap that remains for many schools will be all but eliminated. This goal can be achieved only if the medical profession without delay takes appropriate action to insure the continuing success of the American Medical Education Foundation. If this is done the solution of one of the most serious problems that has been encountered in the whole health field in recent years will be at hand.

MEDICAL EDUCATION AND NATIONAL DEFENSE

The problem of adjusting the various programs of medical education to states of partial or complete mobilization continues to occupy the Joint Committee on Medical Education in Time of National Emergency. This committee was formed by the Council on Medical Education and Hospitals and the executive council of the Association of American Medical Colleges two days after the onset of the Korean conflict. Its members are: Drs. Stockton Kimball, Chairman; Joseph C. Hinsey; A. C. Bachmeyer; Dean F. Smiley; George Berry; Herman G. Weiskotten; Harvey B. Stone; Victor Johnson; Donald G. Anderson; Francis R. Manlove, and Mr. John Stalnaker. The liaison members are Drs. B. R. Kirklin; Harold Diehl; Ravid Ruhe Mr. C. Joseph Stetler.

During the past year the committee has undertaken actions of major importance. On Nov. 1, 1950, a state was submitted to the National Security Resources Board lining recommendations for maintaining a flow of well tr physicians adequate to meet the needs of both the armed f and the civilian economy during partial or complete mob tion.

The Joint Committee in November, 1950, appointed a committee on Curriculum consisting of Drs. Stanley W. C Chairman; Charles B. Puestow; John P. Marbarger; H. W Kendell; Franklin C. McLean; Roy R. Grinker; Roger A. vey; Andrew C. Ivy; Gaylord W. Anderson, and G. M.

On Feb. 10, 1951, the Subcommittee returned to the Committee a report entitled "Suggestions for Supplementin Medical Curriculum in Time of National Emergency." Th port, which has been sent to all medical schools, outlines th ject matter the future physician needs for a sound foun for military medicine and the medical aspects of civilian de

On Jan. 10, 1951, representatives of the Council an Association of American Medical Colleges appeared befo subcommittee of the Senate Armed Services Committee t cuss medical education in relation to pending legislatio universal military training and service. On Aug. 17, 1951 Joint Committee appeared before the National Security T Commission to discuss these same problems.

In addition to its participation in the activities of the Committee, representatives of the Council have served o Healing Arts Advisory Committee to the National Selective ice System. The Council has also been active in collectin disseminating information to individuals and institutions r ing the policies of the Selective Service System and the forces particularly as they affect students, interns, resident teachers in the medical schools.

HOSPITAL STANDARDIZATION

The Council has followed with great interest the negot carried on by the Board of Trustees with the American C of Surgeons, the American Hospital Association, and the can College of Physicians leading toward the establishme Joint Commission on Hospital Accreditation to adminis program of hospital standardization which the American C of Surgeons has conducted for more than 30 years. The C believes that the arrangement agreed to by all four organi is a sound one and one that holds great promise for furt proving the quality of hospital care. The Council is looki ward to doing its part to make the new program a successf

SURVEY OF MEDICAL EDUCATION

The survey of medical education which is being conduc the Committee for the Survey of Medical Education un sponsorship of the Council and the Association of An Medical Colleges ended its second year of field work spring of 1951. During the two-year period, 41 school visited.

At the completion of this phase of the study the Com after carefully weighing all aspects of the problem decid it would not be feasible to visit all medical schools as ha planned when the survey was initiated. This decision wa on the recognition that the partial mobilization necessita the Korean conflict had resulted in increasing demands medical schools from other sources and on the recogniti the schools individually and collectively are faced with decisions on a number of fundamental, long term educ polices. It was the opinion of the committee that it could more service to the medical schools and the public by pre an early report of its findings to date than by continu field work for another one or two years. The Committee, fore, decided to discontinue visits to the medical school June 1, 1951, and to address its full energy to the prepara a report by the earliest possible date. It is now hoped th report will be published and ready for distribution by the of 1952.

Early in 1951 the Committee recognized the possibilit it might not be feasible to visit all medical schools. The sc of schools selected for study was, therefore, adjusted to g adequate cross section of the medical schools of the United States. Since the purpose of the survey was to study problems that are basic to all medical schools rather than the peculiar problems of individual schools and since a representative cross section of schools has been studied, it is the committee's belief that the value of its report will not be materially affected by the lack of opportunity to visit all schools.

The Subcommittee on Preprofessional Education, under the chairmanship of Dr. Aura E. Severinghaus of Columbia University, continues to work in coordination with the program of the Survey Committee. During the past year the subcommittee made an intensive study of preprofessional education which included visits to approximately 100 colleges and universities which offer preprofessional training. In November, 1950, this committee sponsored a three day conference at which a group of leaders from the liberal arts colleges met with the Subcommittee on Preprofessional Education and the Survey Committee for the purpose of discussing the principles and problems of preprofessional education. The points of view and opinions expressed in this conference were summarized and utilized by the subcommittee in orienting its study of preprofessional education in the liberal arts colleges.

A larger conference is being planned for the spring of 1952, to which representatives of the liberal arts colleges and medical schools will be invited for the purpose of discussing the final report of the subcommittee.

REVISION OF ESSENTIALS OF AN ACCEPTABLE MEDICAL SCHOOL

Periodically the Council reviews and revises its standards for the various types of educational programs for which it grants approval. During the past year the Council has been engaged in preparing an extensive revision of its "Essentials of an Acceptable Medical School." The last previous revision was made in 1945. At the time this report was prepared some work still remained to be done on the revision. The Council plans, however, to present the revised "Essentials" to the House of Delegates as a supplementary report at either the 1951 Clinical Session or the 1952 Annual Session.

FOREIGN MEDICAL SCHOOLS

Since February, 1950, the Council, in collaboration with the Association of American Medical Colleges, has published a list of foreign medical schools whose graduates it recommends be given consideration on the same basis as graduates of approved medical schools in the United States. The original list of 38 schools has been expanded to 49. The five Swiss schools and the American University of Beirut were added to the list in June, 1950, the University of São Paulo, Brazil, and the four schools in Belgium in February, 1951, bringing the total to 49. It is expected that other schools will be added as rapidly as information accumulates which justifies their inclusion. Since the Council must depend for information largely on reports furnished by qualified American medical educators who have occasion to visit foreign schools under consideration, development of the list must proceed slowly.

This list has now been adopted as a guide by the licensing boards of 23 states and by the National Board of Medical Examiners. Copies of the list are frequently requested by state and federal governmental agencies, universities, other organizations and individuals. The timeliness of the list and the need for it are emphasized by the fact that since Feb. 7, 1950, the Council has received a total of 1,660 requests for information about foreign medical schools.

SECTION ON GRADUATE TRAINING

The Graduate Training Section has been responsible during the past three years for the administration of the Council's internship and residency approval program. Its activities include correspondence with hospitals conducting or planning to conduct intern or resident training, evaluation of new applications for approval of internship and residency programs, the inspection and reinspection of hospitals, correspondence and personal liaison with the specialty boards and medical departments of the federal services and preparation of the lists of approved services for publication in the Internship and Residency Number of The Journal. During the past year this section has cooperated with the National Interassociation Committee on Internships, on which the Council is officially represented, in implementing a new plan for the appointment of interns. This plan is essentially a method by which the student's hospital preference and the hospital's rating of the student are matched through a central office. It has been adopted as the official procedure for making internship appointments for the year 1952-1953.

A detailed statistical report of inspections made by the field staff for the period from Oct. 1, 1950 to Sept. 30, 1951, is presented later in this report. During the past year one member of the Council's staff has devoted his efforts entirely to visiting federal hospitals. This arrangement was considered necessary because of the expansion of the training programs of the federal services and because of the necessity of expediting consideration of applications in Army and Navy hospitals developing new and revised training programs as a result of the present expansion of the military establishment. For the reporting period, the Council's representatives visited 574 hospitals, reviewing and evaluating 238 internship programs and 1,437 residency programs. The Council's long range program of hospital inspections contemplates visiting every hospital approved for internship or residency training at least once every two years. It is anticipated that this program will now be correlated with hospital surveys to be made in connection with the newly established Joint Commission on the Accreditation of hospitals.

For the past several years, the Council has given serious consideration to the problems relating to the supply and distribution of interns. A number of special committees of the House of Delegates have reported their findings after studying the matter and have urged that an attempt be made to correct the abuses resulting from the constantly increasing disparity between the number of internships offered and the number of available interns. Recognizing the seriousness of the present situation, the Council at its June meeting revised its previous policy of approving a hospital for intern training which left the number of internships to be offered entirely to the discretion of the hospital. Following this action, all hospitals approved for intern training were advised that hereafter, approval would be extended annually to include the specific number and type of internships for which the hospital would be approved. This same principle has been in effect for some time in certain specialties for which approval has been granted with a limitation on the number of residents to be appointed. In order to establish a basis for this year, the Council announced a Quota Basis for the Appointment of Interns. Following the announcement, all hospitals approved by the Council were advised of the number of internships for which the hospital would be approved under this program. The large majority of hospitals accepted the necessity of this policy. A number, representing about 15% of those approved, requested increases because of expanded bed capacity or added activities. A few hospitals, as was anticipated, protested the establishment of any sort of quota basis. At the time, lists of approved internships were being prepared for publication in the Internship and Residency Number and in a directory to be used by the National Interassociation Committee on Internships. It became evident that time did not permit a careful consideration of the requests for an increased number of internships from those hospitals which had applied nor to afford an equal opportunity for a review of the status of all other hospitals which might also wish to apply for an increase. In view of these considerations, the Council has presently deferred the quota plan although strongly urging all hospitals to cooperate voluntarily in appointing interns for next year in accordance with this program.

The problems which have resulted from the increasing imbalance between the number of internships being offered in approved hospitals and the number of potential applicants have pointed up the need for a reevaluation of the internship and a reclarification of its present role in the training of a physician. To study these problems and to consider the internship in its broadest aspects, the Council received authorization from the Board of Trustees to appoint an Advisory Committee on Internships. This committee was established in July, 1951, and is composed of leaders from the profession, the major specialty fields, medical education and hospital administration. Its members include: Drs. S. Howard Armstrong, Chicago; Granville Bennett, Chicago; Ulrich Bryner, Salt Lake City; John Leonard, Hartford, Conn.; John McK. Mitchell, Philadelphia; John Paine, Buffalo; John Romano, Rochester, N. Y.; Anthony J. J. Rourke, San Francisco; Robert Wilson, Philadelphia; John Youmans, Nashville, Tenn.; and Victor Johnson, Chairman, Rochester, Minn.

The committee held its first meeting in September, at which time general objectives were reviewed and plans made for the future development of the study. The House of Delegates will be kept informed of the findings and recommendations of the committee.

The Council wishes to point out that a situation comparable to that regarding the supply and distribution of interns is developing in residency training. Hospitals approved by the Council reported last year that 25% of their residency positions were not filled. This is due in part to the fact that many residents have been called to duty with the Armed Forces. It indicates also that applicants for residency positions are now largely limited to physicians completing their internships as contrasted to the postwar period when many medical officers on leaving the service sought residency appointments.

The number of applications for approval of new residency programs received last year numbered 283. While a year ago there were 529 applications on file in the Graduate Training Section on which action was still pending, as of September 30 these had been reduced to 338; of this number the majority have been reviewed by the Council's field representatives and are under consideration by the Council and the specialty boards concerned. The number of hospitals approved for residency training increased from 1,071 in 1950 to 1,120 this year. There has been a definite leveling off, however, in the number of new programs being established, as compared to the period 1946-1950 which saw a two-fold expansion in the number of residencies offered.

Residency programs in general practice increased from 32 in 1950 to 66 this year. A high proportion of these were reported vacant last year, however, which may be accounted for in part by the fact that the programs are newly established. The relation of the general practice residency to intern training in preparing the graduate for a career in family practice is one of the problems which will have the attention of the Advisory Committee on Internships in making its study.

During the past year the Council reviewed all residency programs in orthopedic surgery in collaboration with the American Board of Orthopedic Surgery. On the basis of this survey, hospitals approved for training in this specialty were classified in three groups; those offering full training in orthopedic surgery, including children's orthopedics, adult orthopedics, fractures d the basic sciences as applied to the specialty; those offering these divisions with the exception of children's orthopedic rgery, and a third group which included hospitals which offer training in one or two divisions but do not provide full training qualifying the resident for examination by the Board. Hospitals in this latter category have been encouraged to develop a comprehensive training program either independently or in collaboration with other approved institutions in order to assure the resident of progressively graded, integrated training. The Council in the last revision of its Essentials stressed the desirability of the development of training programs of this type and is collaborating with specialty Boards in other fields to this end.

Since the Council's last report to the House, a survey of state departments of health has been completed by the American Public Health Association. Based on the findings of this survey, the Council, in collaboration with the American Board of Preventive Medicine and Public Health, has approved 12 residency programs in this field. The training is carried out under the supervision of the state health department. In most programs, however, the majority of the residents' time is spent in the local health units. The addition of preventive medicine and public health brings to 28 the number of specialties and subspecialties for which the Council grants approval. In 19 of these, specialty boards have been established. Eighteen boards now collaborate with the Council in the approval of residency programs. The other, the American Board of Ophthalmology, has advised the Council that it does not wish to participate in a residency approval program but that it will accept training in a hospital approved by the Council, in qualifying for its examinations.

Last December, representatives of the American Board of Obstetrics and Gynecology met with the Council to discuss the lack of uniformity in the requirements of the two groups for residency training in this specialty. Following this meeting the Council was advised that the Board had taken action on the points which were discussed with the result that the standards for approval of training programs in obstetrics and gynecology are now essentially the same for both organizations. The wholehearted cooper
ation of this Board, as well as that received from the oth
specialty groups, has been most encouraging to the Council.

The Council has worked in close collaboration during the p
year with the American Board of Internal Medicine and t
American College of Physicians in the evaluation and appro
of residency programs in internal medicine. This work is carri
on by the Conference Committee on Graduate Training in Me
cine, composed of representatives from each of the participati
organizations. The Committee is engaged in a pilot study of re
dency programs in this specialty to lay plans for an overall
view of all approved services in internal medicine. To assist
the work of the committee, the Council received last year
contribution of $1,500 from the American College of Physici
and one of $1,000 from the American Board of Internal Me
cine. The Council has expressed its sincere appreciation
these two organizations for this direct support and interest
elevating standards of training in this specialty. The Cour
further has had the assistance of the Subspecialty Boards of
American Board of Internal Medicine in evaluating and appr
ing residency programs in allergy, cardiovascular diseases, g
troenterology, and pulmonary diseases.

In general surgery, residencies are approved by the Coun
the American Board of Surgery and the American College
Surgeons through the Conference Committee on Graduate Tra
ing in Surgery. This committee has been responsible during
past year for the development of a uniform set of standards
residencies in general surgery and of a list of hospitals offeri
training in the specialty approved by all three organizations
for the establishment of a single hospital inspection procedu
Members of the Council's field staff now make the basic insp
tion of hospitals applying for approval in surgery. Three ot
specialty boards have expressed their interest in the developm
of a similar arrangement in their particular fields. Prelimin
discussions to this end have been initiated with the Ameri
College of Surgeons and the following specialty Boards: Am
can Board of Obstetrics and Gynecology, American Board
Otolaryngology, and the American Board of Proctology.

ACTIVITIES OF THE SECTION ON HOSPITAL SERVICE AN TECHNICAL SCHOOLS

The Section on Hospital Service and Technical Schools d
primarily with the registration of hospitals and the approva
schools for medical technologists, x-ray technicians, phys
therapists, occupational therapists and medical record librari
These activities, carried out in accordance with stand
adopted by the House of Delegates, involve not only the ev
ation of individual applications but also the maintenance
acceptable lists of hospitals and technical schools as publis
annually in THE JOURNAL. The latest issue of the Hospital N
ber, May 12, 1951, contained the names of 6,430 hospi
registered by the American Medical Association. These ins
tions reported in 1950 a total of 1,456,912 beds, 89,200 bassin
17,023,513 admissions, 2,815,806 births, and an average d
census of 1,242,777. The general hospitals, with 15,830,170
missions, offered the greatest volume of service, yet the psyc
tric institutions alone maintained an average daily census
687,567 which is greater than the combined patient load in
other registered hospitals. This annual survey revealed also
while the government hospitals, as a group, have 71% of
total beds, they receive only 25% of all hospital admissions.

From Oct. 1, 1950, to Sept. 30, 1951, the number of regist
hospitals was reduced from 6,662 to 6,549. In this period
hospitals were closed or failed to supply the information ne
sary for continued registration, whereas 309 were added to
list. Locally the respective county medical societies have
ticipated actively in the evaluation of individual applications
full cooperation has also been received from district counci
and other representatives of state medical associations.

In the technical fields the Council on Medical Education
Hospitals has worked closely with the Council on Phys
Medicine and Rehabilitation and the national organizat
representing the various fields. Here the major problems con
chiefly the growing shortage of technical personnel, the
portance of providing additional training facilities and the n
for further evaluation and inspection of existing schools. Con
uing efforts are being made to increase educational opport
ties and impressive gains have already been made, particul

in the x-ray and laboratory fields. In the last year the Council has communicated with all medical schools calling attention to the need for further facilities for the training of physical therapists and occupational therapists. The response has been encouraging as 17 medical schools, aside from the 18 already engaged in physical therapy training, have expressed their interest in the development of suitable programs. In occupational therapy, where 11 medical schools are already participating in technical training, there is indication that 13 additional medical colleges may wish to organize similar courses. In the field of medical record library science, where the shortage of trained personnel is equally acute, suggestions have been made that courses be established for high school graduates who have not fulfilled the college requirements specified in the present standards. This method may be important, also, in relation to other fields for if an adequate supply of technical personnel cannot be produced under present educational methods, it may become necessary to modify the existing pattern or depend in increasing degree on the development of subsidiary groups of junior technicians.

Assistance offered by the American College of Radiology has resulted in a comprehensive survey of the approved x-ray schools in which the inspection of individual training programs is being carried out by regional councilors of the College. This study is progressing rapidly and to date 246 schools have been visited out of a total of 292. In the laboratory field, the Board of Schools of Medical Technology, working in cooperation with the Council, has recently completed a questionnaire survey of the approved schools, now totaling 475. It is anticipated that this study may later develop into a regular inspection program for the evaluation or reappraisal of individual schools.

The Council is continuing its interest in the promotion and development of general practice sections in hospitals. It has collected information for publication in the Hospital Number of THE JOURNAL showing the facilities and privileges available to qualified general practitioners. This material, which has also been forwarded to the American Academy of General Practice, will be supplemented by further studies in the next Annual Census of Hospitals in the United States.

APPROVED EXAMINING BOARDS IN THE MEDICAL SPECIALTIES

No new Boards have been approved during the past year. There are now nineteen Boards established including eleven in urgery and the surgical specialties, six in medicine and the medical specialties and the two clinical-laboratory specialties, pathology and radiology.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The forty-seventh annual Congress on Medical Education and Licensure, sponsored by the Council on Medical Education and Hospitals and the Federation of State Licensing Boards was held in Chicago on Feb. 12 and 13, 1951. Among the subjects discussed were the supply of physicians and the medical curriculum in relation to mobilization, the policies of the Selective Service System with respect to medical personnel, the evolution of the medical curriculum, supply of physicians for rural areas, premedical education and the financing of medical education. The 48th annual congress will be held in Chicago on Feb. 11 and 12, 1952.

COLLABORATION WITH OTHER AGENCIES

The fact that numerous organizations and agencies today have an active interest in one or more phases of medical education requires that there be close cooperation among these various groups if sound national efforts are to be made for the advancement of medical education. From its very beginning the Council has recognized the importance of collaborating with other organizations and has sought to work closely with every major group that has displayed a real interest in medical education. As a result, close collaboration with other agencies has become one of the most significant parts of the Council's program in terms of time, energy, and importance.

Particularly beneficial have been the close relations that the Council enjoys through regularly constituted liaison committees with the Association of American Medical Colleges and the Advisory Board for Medical Specialties, and through the more recently established conference committees on graduate training with the American College of Surgeons and the American College of Physicians. Of great importance also have been the many cooperative undertakings with the individual American boards in the specialties and with the medical departments of the Army, Navy, Air Force, Public Health Service, and Veterans Administration on matters pertaining to programs for graduate training.

Conjoint activities with these and other organizations have been varied in nature and have involved members of the Council, the Secretary and members of the staff. These cooperative enterprises have included consultations, participation in conferences, meetings, the work of advisory committees and joint sessions and studies. A partial list contains the names of 65 agencies and organizations with which the Council has collaborated during the year.

MEDICAL SCHOOLS VISITED

During the year Oct. 1, 1950, to Sept. 1, 1951, the following medical schools were visited for consultations, inspection or in connection with the Survey of Medical Education: Creighton University, Howard University, State University of Iowa, University of Louisville, University of Minnesota, University of North Carolina, University of Puerto Rico, University of Rochester, and University of Ottawa.

Representatives of the Council also participated in studies and consultations relative to establishing a state medical college in New Jersey, the development of medical departments of the University of Miami and Yeshiva University and the expansion of the West Virginia University School of Medicine to a four-year school.

INSPECTION OF HOSPITALS AND TECHNICAL SCHOOLS

Inspections of hospitals and technical schools made by the Council during the year Oct. 1, 1950, to Sept. 30, 1951, are summarized as follows:

Intern training	92
Residencies and Fellowships	336
Intern training and residencies	146
Registration	19
Technical schools	5
Total	598
Individual residencies and fellowship programs investigated	1,437

SUMMARY OF HOSPITALS AND TECHNICAL SCHOOLS

Figures for approved hospitals and technical schools with changes occurring during the year Oct. 1, 1950, to Sept. 30, 1951 are as follows:

Registration of Hospitals	
Hospitals registered, Oct. 1, 1950	6,662
New institutions registered to Sept. 30, 1951	309
Closed or transferred to unclassified files	422
Hospitals registered Sept. 30, 1951	6,549
Internship Approval	
Hospitals approved for intern training, Oct. 1, 1950	792
Approved to Sept. 30, 1951	73
Removed from approved list	21
Hospitals approved for intern training, Sept. 30, 1951	844
Residency Approval	
Hospitals approved for residency training, Oct. 1, 1950	1,071
Approved to Sept. 30, 1951	66
Removed from approved list	17
Hospitals approved for residency training, Sept. 30, 1951	1,120
Medical Technology Schools	
Approved schools, Oct. 1, 1950	488
Approved during year	37
Removed from approved list	10
Approved schools, Sept. 30, 1951	475
Medical Record Librarian Schools	
Approved schools, Oct. 1, 1950	18
Approved during year	2
Removed from approved list	1
Approved schools, Sept. 30, 1951	19
Occupational Therapy Schools	
Approved schools, Oct. 1, 1950	24
Approved during year	0
Removed from approved list	0
Approved schools, Sept. 30, 1951	24
Physical Therapy Schools	
Approved schools, Oct. 1, 1950	31
Approved during year	1
Removed from approved list	1
Approved schools, Sept. 30, 1951	31
X-Ray Schools	
Approved schools, Oct. 1, 1950	278
Approved during year	18
Removed from approved list	4
Approved schools, Sept. 30, 1951	292

COUNCIL PUBLICATIONS

During the period Oct. 1, 1950, to Sept. 30, 1951, the Council was responsible for preparing material for six numbers of THE JOURNAL:

Postgraduate and Continuation Courses for Physicians	Dec. 9
Hospital Service in the United States	May 12
Medical Licensure Statistics	May 26
Postgraduate and Continuation Courses for Physicians	June 9
Medical Education in the United States	Sept. 8
Internship and Residency Number	Sept. 29

Other regular publications of the Council included: Proceedings of the 1951 Annual Congress on Medical Education and Licensure; Approved Examining Boards in Medical Specialties; Choice of a Medical School; Approved Colleges of Arts and Sciences; Foreign Medical Schools; Reciprocity and Endorsement Policies in Medical Licensure; Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other than the United States and Canada; Federation Bulletin (for the Federation of State Medical Boards of the United States); *Quarterly Report of Residency Information* Service; and lists of sundry technical schools.

The Council also has reprinted for distribution a number of articles dealing with questions relating to the Council's work and responsibilities and, in addition, has published numerous statements in THE JOURNAL from time to time concerning current problems.

ELECTION OF DR. FRANKLIN MURPHY TO THE COUNCIL

Dr. Franklin D. Murphy, Dean of the University of Kansas School of Medicine, was elected to membership on the Council by the House of Delegates at the annual session in June, 1951. *He succeeds Dr. William S. Middleton, who, because of the* pressure of other heavy responsibilities, requested that he not be considered a candidate to succeed himself. Since his election to the Council, Dr. Murphy has been appointed Chancellor of the University of Kansas.

APPRECIATION

It is once again a pleasure for the Council to express its gratitude to the numerous organizations, institutions, and indi- duals who by their generous assistance have contributed so uch to its program this year. Particularly, thanks are due the fficers, trustees, and members of the House of Delegates of the American Medical Association who have provided material aid, suggestions, and encouragement which have been a large factor in the success of the Council's efforts.

Respectfully submitted,

H. G. WEISKOTTEN, Chairman.
VICTOR JOHNSON.
W. L. PRESSLY.
HARVEY B. STONE.
GUY A. CALDWELL.
RUSSELL L. HADEN.
FRANKLIN D. MURPHY.
DONALD G. ANDERSON, Secretary.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

Since the Clinical Session in Cleveland, Dec. 5-8, 1950, the Council on Scientific Assembly held meetings on March 13 in Houston, Texas; on June 10 in Atlantic City, N. J.; and on July 30 in Los Angeles. The Chairman of the Council also met informally in Houston on January 30 with Mr. Thomas R. Gardiner, Business Manager of the American Medical Association, and Dr. J. T. Billups, Chairman of the Local Committee on Arrangements for the Houston Clinical Session, in preparation for the regular meetng of the Council held in the same city on March 13. The actions taken at these meetings is summarized in this report. A supplemental report on business transacted at a conference with the Section Secretaries on October 16 in Chicago, and at a meeting of the Council on December 2 in Los Angeles will be presented to the House of Delegates at the Los Angeles Session.

1951 CLINICAL SESSION

Arrangements for the Houston Clinical Session were pra
tically completed by the time the Council met in Houston
March 13. Dr. J. T. Billups, Chairman of the Local Committ
on Arrangements, and an active group of Texas physicians i
cluding the deans of the medical schools of Southwestern U
versity in Dallas, Baylor University in Houston and t
University of Texas Medical Branch in Galveston, had outlin
a program of distinction including color televison and a seri
of outstanding exhibits. Splendid teamwork was shown by
Billups and his Houston committee, and their work in the opini
of the Council on Scientific Assembly was admirable. It w
with great regret, therefore, that the Council found it necessa
on recommendation of the Local Committee on Arrangeme
and the Texas Medical Association, to transfer the meeting
another city. It is to be hoped that the work of Dr. Billups a
his colleagues will serve as a model for a future meeting
the American Medical Association in the Southwest, where
Association has not met for 25 years.

As in 1950, when the Clinical Session was unexpectedly tra
ferred in midsummer from Denver to Cleveland, a similar sit
tion confronted the Council in 1951. Houston was abandon
and Los Angeles was quickly chosen as the convention city.
Walter Scott of Hollywood was appointed Chairman of
Local Committee on Arrangements and he, working rapidly a
efficiently, was able to outline his program at a meeting of
Council held in Atlantic City on June 10. Illness of the Cha
man of the Council prevented him from attending, but t
meeting was ably conducted by the Acting Chairman,
Charles H. Phifer of Chicago. A second meeting of the Coun
was held in Los Angeles on July 30, again with Dr. Phifer
Acting Chairman. With the cooperation of representatives of
Los Angeles County Medical Association, Dr. J. Lafe Lud
of Los Angeles was chosen as Co-Chairman to act with
Scott, and the completed committee and program, includ
color television to be broadcast from the Los Angeles Cou
Hospital, was approved by the Council.

The Council offers the Scientific Program for the Los Ange
Clinical Session as part of its report, with expectation that
meeting will exceed the standard set at previous sessions. Gea
to the local facilities, as must be all programs of clinical sessi
speakers have been chosen from a wider area of the cou
than ever before at a midwinter meeting. The session will
be more national in character than in the past, a trend that
the full approval of the Council. To arrange two programs
clinical sessions in one year has been no simple task but, tha
to loyal members of the American Medical Association in Te
and in California, this problem has been met to the satisfac
of the Council on Scientific Assembly and, it is hoped, to
members of the House of Delegates.

TELEVISION

The Council approved the application received from
Smith, Kline and French Laboratories for permission to tele
at Atlantic City and at Los Angeles in 1951. Dr. Stanley
Reimann, a member of the Council, continued to serve as offi
representative of the Council for the 1951 annual and clin
sessions. No other applications for television were received.
Council approved the program presented at Atlantic City un
the direction of Dr. C. Alexander Hatfield, associate surg
to the Pennsylvania Hospital. The program for the Los Ang
Clinical Session, arranged under the direction of Dr. R. Va
Sloan, Glendale, Calif., president of the Los Angeles Cou
Chapter, California Academy of General Practice, was a
approved.

SECTION ON MILITARY MEDICINE

The Council has appointed the following physicians as offic
for the first meeting of the new Section on *Military Medic*
to be held at the Chicago Annual Session in June, 1952:

Chairman, Dr. Melvin A. Casberg, St. Louis.
Vice Chairman, Dr. Richard A. Kern, Philadelphia.
Secretary, Dr. Sheldon S. Brownton, Washington, D. C.
Delegate, Dr. Russel V. Lee, Palo Alto, Calif.
Alternate Delegate, Dr. Wendell Scott, St. Louis.
Executive Committee, Dr. Melvin A. Casberg, St. Louis;
Russel V. Lee, Palo Alto, Calif; Dr. C. C. Shaw, Washingto
D. C.

Representative to Scientific Exhibit, Dr. William S. Stone, Washington, D. C.

Respectfully submitted,

HENRY R. VIETS, Chairman
STANLEY P. REIMANN
ALPHONSE MCMAHON
CHARLES H. PHIFER
CARL A. LINCKE
MICHAEL E. DEBAKEY
SAMUEL P. NEWMAN
LOUIS H. BAUER
President-Elect
AUSTIN SMITH,
Editor of THE JOURNAL
GEORGE F. LULL,
Secretary.
} Ex officio

REPORT OF THE COUNCIL ON MEDICAL SERVICE

To the Members of the House of Delegates of the American Medical Association:

The Council on Medical Service has continued to collect data concerning medical service programs and to study these programs with a view to determining changes and trends. Much of this work was covered in the Council's progress report to the House of Delegates in June. Only recent developments will be presented here.

VOLUNTARY HEALTH INSURANCE

Continued growth in the number of persons protected by the various health insurance programs is encouraging. During 1950 the enrolment increase continued as evidenced by the September, 1951, revision of "A Survey of Accident and Health Coverage in the United States." Compiled by the Survey Committee of the Health Insurance Council, it includes enrolment figures of Medical Society plans, including Blue Shield, private insurance, Blue Cross plans and other voluntary agencies. Copies were sent last September to members of the House of Delegates, officers of the Association, officers of constituent associations, prepayment plans and others.

On Dec. 31, 1950, the number of persons protected by some form of hospitalization, surgical expense and medical care expense benefit insurance totalled 76,961,000, 54,477,000 and 21,589,000, respectively. The numerical growth for each class of coverage during 1950 was: hospitalization, 10,917,000; surgical expense, 13,334,000; and medical expense, 4,727,000. In other words, during 1950 hospitalization enrolment increased 17% and surgical expense benefit enrolment increased 32%, while the number carrying medical expense benefit insurance increased 28%.

Growth in number of persons insured has been accompanied by improvement in the scope of coverage. The improvements in coverage apply to both medical society plans and other programs. Several plans and companies previously writing only group coverage have entered the field of underwriting individual risks. Conversely, several plans and companies heretofore specializing in underwriting individual risks have expanded their activities to include group underwriting. The availability of voluntary health insurance programs is thus increased. A further improvement is the fact that more and more plans and companies are either raising or eliminating entirely the age limit restrictions that once were so common.

The Council's Committee on Prepayment Hospital and Medical Service is maintaining liaison with the Blue Shield Commission and other trade association groups toward the end that such growth may continue on a sound basis.

The attention of the House of Delegates is invited to the statement on voluntary health insurance adopted by the House of Delegates during the 1950 Clinical Session in Cleveland. The Council on Medical Service has approved an amendment to that statement, which starts on page 55 of the Proceedings of the Cleveland Session, and submits this amendment for your consideration. The amendment is the substitution of a new paragraph four (4) as set forth below with the present paragraphs four (4) and five (5) renumbered five (5) and six (6), respectively. The new suggested paragraph is as follows:

> "The hospital supplying the above mentioned hospital services should present a separate bill for those services. The professional person supplying such above stated medical services should present a separate bill distinct from that of the hospital. Professional services are those in which an opinion, diagnosis, interpretation, or treatment is given by a person licensed to practice medicine and surgery."

The Council is encouraged by the sustained interest in the Seal of Acceptance. This is evidenced by the continuing applications on behalf of medical society plans.

In considering applications from prepayment plans for the right to use the Seal of Acceptance, the Council and its Committee on Prepayment Hospital and Medical Service have relied on the constituent associations and component societies. Care has been exercised in interpreting the adopted standards in the light of good public policy. Added safeguards have been approved by the Council. The Council submits to the House of Delegates the following suggestions concerning its issuance of the Seal of Acceptance to plans sponsored or approved by constituent associations and component societies:

1. Any plan which provides reduced benefits in the event a subscriber is treated by a non-participating physician shall not be considered as eligible to receive the Seal of Acceptance.
2. Any plan which requires in writing that its participating physicians shall not participate in any other program shall not be considered as eligible to receive the Seal of Acceptance.
3. The Seal of Acceptance shall not be available, nor continued, to any plan not providing statistical, financial and enrolment data when requested.
4. The Seal of Acceptance is extended to the plan as a mechanism rather than to the actual policies, certificates, fee schedules, claim forms, and so forth. In other words, the Seal if used, should appear on promotional material and not on the legal contracts issued by the approved agencies.

The Council is considering either undertaking or sponsoring studies for the purpose of analyzing the costs of medical care and the reasons for such costs. With the costs and reasons determined, such information would first be made known to the profession and the various agencies in the health insurance field. This would enable the agencies to offer benefits more consistent with the costs. The next step would be to inform the public through the Public Relations Department of the American Medical Association and other channels so the public, in turn, can be in a position to purchase benefits for the insurable costs of medical care in closer relationship to such costs.

FEDERAL MEDICAL SERVICES

The Committee on Federal Medical Services has sponsored conferences with the Department of Medicine and Surgery of the Veterans Administration. Primarily, these conferences were for the purpose of determining the official attitude of the Veterans Administration with regard to its medical care programs. The Home Town Medical Care program for veterans with service-connected illnesses is administered in three ways. Two of the administrative methods involve either contracts or agreements with constituent associations. These conferences have enabled the Committee and the Council to be of greater service to those constituent associations under agreement or contract. The Committee has participated in other conferences designed to improve the features of some of the Home Town Medical Care programs administered through intermediaries.

In addition to the liaison developed with governmental agencies, the Committee is attempting to develop better working relationships with nongovernmental groups and agencies in studying those fields of federal medical services not handled specifically by other committees.

HOSPITALS AND THE PRACTICE OF MEDICINE

The Report on Hospitals and the Practice of Medicine continues to be a topic of widespread discussion. Although the report is primarily a restatement of already established principles, it is looked on as something new and different by many persons in both the medical and hospital field. Members of the Committee on the Extension of Hospitals and Other Facilities have spoken on the general subject before various groups and have replied to numerous inquiries regarding the report.

Such activities as have taken place in an effort to conform to the principles reiterated in the report have been primarily local and, with few exceptions, are being settled locally. In some areas medical care plans are making efforts to include in their contracts those medical services over which there has been controversy. In at least one area, however, one hospital plan has refused to relinquish these medical services despite the willingness of the medical plan to accept them.

Because of the wide divergence of opinion concerning the report and the various interpretations given to it, the Council has requested the Committee on Extension of Hospitals and Other Facilities to meet prior to the Clinical Session and review developments to date.

PHYSICIANS PLACEMENT SERVICE

Interest in improved physician distribution and renewed emphasis on general practice have focused attention on the activities of physician placement services. Virtually all of the state medical associations have some provision to assist physicians who are seeking a location and communities seeking a physician. However, less than one-half of the states have what could be called a formal program. The Council's Physicians Placement Service works closely with state associations, providing a sort of national clearing house for both physicians and communities.

In December, 1950, the Council reported on the situation in a pamphlet, "Physicians Placement Service." In June, 1951, at the request of the Board of Trustees, the Council submitted a report outlining suggestions for an expanded program in the placement field. The statement of the Board to the House of delegates, approved in June, 1951, in regard to this report reads in part as follows:

> "The Board of Trustees believes that there is a definite need for expanding the Association's activities in this field and in providing the leadership to develop further the physician placement services in the state medical societies, as follows: (1) the organization and implementation of an effective physician placement service in every state; (2) expansion of the present program of the American Medical Association's Physician Placement Service; (3) conducting a national conference on physician placement if found advisable, and (4) design plans for financial assistance to physicians in setting up a practice.
>
> "The Board will give support to this program by financing it to the degree demonstrated to be necessary."

As a follow-up to the foregoing recommendations a Conference on Physician Placement Service activities was held in Chicago in October. Attending the Conference were representatives of ten state medical associations, the Association of American Medical Colleges, the American Academy of General Practice and sev- al Councils and Bureaus of the American Medical Association. ong the matters discussed were: What should be the relation- between the American Medical Association Physicians ment Service and the state placement services? What should be done to improve placement service activities throughout the country to obtain a better distribution of physicians?; What can be done to get communities to provide inducements which will attract young physicians?, and Is a "revolving fund" from which young physicians may borrow either necessary or feasible?

One of the primary problems confronting physician placement services is the attitude of physicians towards practice in small communities. As the population of the United States has tended to concentrate in the urban areas, so, too, have physicians moved to the cities. Paralleling this movement has been the trend toward specialization. To reverse these trends requires the combined efforts of the medical societies, the medical schools and the people who live in small communities and rural areas.

Many types of experiments and programs are now in operation throughout the United States, and the Council on Medical Service is collecting and preparing data on the activities of medical societies, medical schools and communities directed to attracting young physicians to general practice and to practice in small communities. Among the activities to be studied and evaluated in the light of placement service objectives are medical scholarship and loan programs, general practice preceptorship programs, special courses for general practitioners, rotating internships and residencies in community hospitals, and inducements that can be provided by communities.

The conclusions of the Conference on Physician Placement Service activities and related problems will be considered by the Committee on Extension of Hospitals and Other Facilities in November.

MATERNAL AND CHILD CARE

As reported in June, activities in the field of maternal and child care have centered around the proposals to revive a program similar to the Emergency Maternity and Infant Care Program which operated during World War II. Conferences have been held with representatives of the American Academy of Pediatrics, Ame can Legion, Association of State and Territorial Health Office American Committee on Maternal Welfare, Catholic Hospi Association, American Hospital Association; American Prot tant Hospital Association, and American National Red Cross.

In the summer of 1951 the Department of Defense estimat the armed forces strength for 1952 at 3½ million men (althou recent estimates put the number at four million) of which appro mately one-third will be married. Military personnel and facilit are expected to care for about 70,000 of the 240,000 estimat births to wives of enlisted men. The remaining 170,000 mu then, be cared for in civilian hospitals and by civilian physicia Statistically this presents no problem, but the fact that ma wives follow their husbands to military camps creates a burd in these areas on both hospitals and physicians. Being "away fr home" also depletes the finances of servicemen's wives, creati a further problem for local welfare agencies.

The question of the need for a special program, such as t World War II E. M. I. C., has occupied much of the time of th conferences. With but one exception the groups with which t Council has conferred have encountered no widespread ne which would warrant the creation of a federal program and ha agreed that with proper planning such maternity cases can cared for locally. The only indication as to the existence of widespread "need" comes from a survey made at the request the Children's Bureau by the American National Red Cross t the month of March, 1951. Even this survey, we believe, is i conclusive and merely emphasizes the need for local and in vidual planning rather than a need for federal interventio

Other equally important questions have also been conside during these conferences. How can such need as does exist, p ticularly in and around the large encampments, be best ca for? How can local and individual planning be best carried To what extent should plans be made in the event that a f scale war is encountered? What part can voluntary health ins ance play in any program that might be developed for the depe ents of servicemen?

The answers to these and other questions are still not clear will require the consideration and cooperation of all interes organizations. The Council believes that adequate liaison been established with interested organizations and will conti to confer with them. For the present, however, the conclusi reported to the House of Delegates in June, 1951, remain changed.

INDIGENT CARE

The Council has made a good start on the complex prob of care of the indigent. During the summer a medical stud with a background in public health administration was emplo for a period of six weeks to assist in the actual field surveys local indigent medical care programs. The study is concer with two general groups of people: (1) those on general re programs, including the indigent and medically indigent, (2) those on Public Assistance Programs, including the old pensioners, the dependent children, the blind, and the per nently and totally disabled. The importance of these groups the field of medical service is apparent when one considers during April, 1951, one person was receiving old age and ability benefits for every 11 employed persons, and one per was receiving public assistance benefits for every 13 pers Accurate data as to the number on general relief are not av able, but it is small compared to the ever-increasing numb coming within the provisions of public assistance.

Preliminary field surveys have been completed in the foll ing communities: New Haven, Conn.; Toledo, Ohio; Madis Wis.; Buffalo, Erie County, N. Y.; Monmouth County, N. Newark, N. J.; and Des Moines, Polk County, Iowa.

In addition, three states and five other local areas have b selected for field surveys this winter and spring. The sched calls for completion of the work by April 1, 1952, so tha complete report on "Medical Care for the Indigent" may made to the House of Delegates next June.

LIAISON WITH OTHER ORGANIZATIONS

Liaison with other national organizations either active in interested in medical service programs is most important, a the Council has made every effort to see that such liaison developed. In addition to the organizations mentioned elsewh in this report, contact has been maintained during the year w representatives of the following groups:

American Academy of General Practice
American Academy of Pediatrics
American Association of Medical Clinics
American College of Radiology
American Dental Association
American Legion
American Public Health Association
American Public Welfare Association
American Society of Anesthesiologists
Association of American Medical Colleges
Association of American Physicians and Surgeons
Blue Shield Commission
Brookings Institution
Chamber of Commerce of the United States
College of American Pathologists
Commission on Chronic Illness
Cooperative Health Federation of America
Federation of Employees' Benefit Associations, Inc.
Health Insurance Council
Insurance Economics Society of America
Medical Economics, Inc.
National Association of Clinic Managers
National Association of Medical Dental Bureaus, Inc.
National Health Council
Public Health Service
Research Council for Economic Security
United Mine Workers Welfare and Retirement Fund
Veterans Administration

LOAN KITS

During the year the loan kits on various aspects of medical ervice have been used extensively. Interest has been greatest n group practice, emergency medical call programs and comunity health councils, although many requests are received for an material on temporary disability benefits legislation, inigent care, and grievance committees. All of the loan kits are ept up-to-date by adding new material as it becomes available.

DISTRIBUTION OF MATERIAL

With few exceptions the Council distributes material only n request. During 1951 requests continued to come from phyicians, medical societies, students, schools and libraries. In ddition, an increased number of requests have come from overnment agencies, labor groups, service clubs, and foreign ountries.

In reply to these requests over 165,000 pamphlets and reprints vere distributed during the year. The bulk of the items had to lo with the general subject of health insurance, voluntary and ompulsory. However, interest in information on such subjects s health councils, emergency call plans, grievance committees, nd physicians placement services has shown considerable ncrease.

Special kits of material have been prepared for debate stulents and to meet the needs of students participating in essay ontests sponsored by the woman's auxiliaries, the Association f American Physicians and Surgeons and others.

Respectfully submitted,

James R. McVay, Chairman.
Elmer Hess, Vice-Chairman.
Jesse D. Hamer.
Joseph D. McCarthy.
Thomas A. McGoldrick.
H. B. Mulholland.
John W. Cline.
E. L. Henderson.
David B. Allman.
Mr. Thomas A. Hendricks, Secretary.

REPORT OF THE AMERICAN MEDICAL EDUCATION FOUNDATION

To the Members of the House of Delegates of the American Medical Association:

The American Medical Association in December, 1950, with the authorization of the Board of Trustees, sponsored the establishment of the American Medical Education Foundation as an independent corporation to receive funds for the support of medical education.

The first meeting of the Board of Directors of the American Medical Education Foundation was held Feb. 14, 1951. A constitution and by-laws were adopted and the following Directors and officers were elected: Drs. Elmer L. Henderson, president; Harvey B. Stone, Vice President; Donald G. Anderson, Secretary-Treasurer; Louis H. Bauer; Gunnar Gundersen; Edwin S. Hamilton; Walter B. Martin; George F. Lull; J. J. Moore; H. G. Weiskotten; and Victor Johnson.

In July, 1951, Mr. Russell F. Staudacher was named to the position of Executive Secretary, and offices are maintained in the headquarters building of the American Medical Association in Chicago.

The Board of Directors held two additional meetings, on April 13 and June 12. At the April meeting the Directors voted to channel receipts of the American Medical Education Foundation through the National Fund for Medical Education headed by former President Herbert Hoover. Subsequently, the Foundation contributed $640,682.90, representing receipts of the Foundation to May 31, 1951. This amount provided more than 50% of the initial grants made by the National Fund to the 79 medical schools in July, 1951.

The officers of the Foundation took an active part in the public announcement meeting of the National Fund held May 16 in New York City. On several other occasions Foundation officers have met with National Fund executives for purposes of evaluating progress and correlating future plans.

The Directors also voted at the April meeting to allow contributors to the Foundation to earmark their donations for the benefit of any approved medical school the donor desired. This action proved a stimulus for added donations from the profession.

During the spring contributions to the Foundation were declared income tax exemptible for the year by the Commissioner of Internal Revenue. This ruling provides for 1952 and subsequent years until permanent exemption is granted.

At the June meeting plans were made for a sample direct mail appeal for funds with additional tests planned for October. As of Oct. 1, 1951 the total contributions to the Foundation were $689,244.90. The organized activities in several states indicate that the $1,000,000 goal for 1951 as set by the profession may be reached in the months immediately ahead.

During 1951 the Foundation used most of the mediums available for promoting and telling the story of the need for funds. Of especial help and great value were the contributions of time, space and counsel made by the Editor and staff of The Journal of the American Medical Association. The Journal printed editorials and contributor listings and gave freely of space for institutional advertising. Additionally, all state and county medical society editors gave many editorial columns to promote the ideals of the Foundation. The plea for contributions was also made by use of an advertising message on the mailing machine which imprinted each piece of first class mail leaving the American Medical Association headquarters building. A clip sheet for use by editors, both lay and professional, was developed in order that all news and aims of the Foundation might be disseminated as widely as possible.

The Foundation exhibited at the American Medical Association session in June and plans to do so at the Clinical Session in December. A new exhibit was developed and first used at the annual meeting of the Medical Society of Virginia. The Foundation is prepared to exhibit at state medical society meetings when the opportunity is presented. Letters have been sent periodically to all state medical association presidents and secretaries informing them of the progress by their states in raising funds for the Foundation. Visits were made to several states for the purpose of assisting in the formation of programs tailored to meet specific needs. These visits served to stimulate many states into activation of programs designed to increase the flow of contributions from certain areas. Several informational pamphlets are being prepared for use in telling the purposes and needs of the Foundation.

Appreciation of the efforts of the Foundation was expressed by the members of the Association of American Medical Colleges meeting in annual session late in October, at which the following motion presented by Dr. George Pack Berry, chairman of the Committee on Financial Aid to Medical Education, was adopted:

> "I move that the Deans of the Medical Schools, in assembly at French Lick for their Sixty-Second Annual meeting, unanimously express their sincere appreciation and their enthusiastic thanks to the Trustees and Officers of the American Medical Education Foundation of the American Medical Association for their substantial support of medical education and for helping to focus national attention on the serious financial predicament of the medical schools."

The Foundation Directors feel that with continued, increasing cooperation by everyone interested in maintaining medical education at the present high level, the present gap between funds needed and funds available will be narrowed. It is on this promise of cooperation and activity that the Directors predicate their plans for the year ahead.

APPRECIATION

The Directors of the American Medical Education Foundation wish to thank all those individuals and organizations both lay and professional, who have had a part in writing the first year's history of one of organized medicine's most important projects. The progress made to date would have been impossible without this valued help. Of particular import and deserving of singular recognition is the American Medical Association, its House of Delegates, trustees and officers for their generosity in making available the half million dollars which became the cornerstone of this fledgling philanthropic organization.

Respectfully submitted,

ELMER L. HENDERSON, President.
HARVEY B. STONE, Vice President.
DONALD G. ANDERSON, Secretary-Treasurer.
LOUIS H. BAUER.
GUNNAR GUNDERSEN.
EDWIN S. HAMILTON.
WALTER B. MARTIN.
GEORGE F. LULL.
J. J. MOORE.
H. G. WEISKOTTEN.
VICTOR JOHNSON.
MR. RUSSELL F. STAUDACHER, Executive Secretary.

REPORT OF THE STUDENT AMERICAN MEDICAL ASSOCIATION

To the Members of the House of Delegates of the American Medical Association:

Dec. 27 and 28, 1951, are important dates for the medical profession, organized medicine, medical education and the medical student. At this time the House of Delegates of the Student American Medical Association will meet in its first annual session, the initial meeting in what promises to be a long series of yearly gatherings of medical students from all parts of the nation.

The Student American Medical Association, while only a year old, is the fruition of the dreams and hopes of many persons and groups for the past two decades and even longer. For years there have been efforts to organize medical students into a cohesive group, as the constitution of the new organization clearly states, "to advance the profession of medicine, to contribute to the welfare and education of medical students, to familiarize its members with the purposes and ideals of organized medicine and to prepare its members to meet the social, moral and ethical obligations of the profession of medicine."

The planning of isolated individuals and groups for years was culminated in tangible fashion on Dec. 29, 1950, when representatives of 42 medical schools attended the constitutional convention in Chicago. Many of the remaining 32 medical schools evinced an interest but had no representative student organization from which to select a delegate.

The following officers were elected to guide the organization:

President:
Warren Mullen, University of Michigan Medical School.
Vice President:
Harry Sandberg, University of Illinois College of Medicine.
Treasurer:
David Buchanan, University of South Dakota, School of Medical Sciences.
Executive Council:
William Davenport, University of Arkansas School of Medicine.
Herbert Sperling, Boston University School of Medicine.
John Looper, Medical College of Georgia.
Donald Brugger, Ohio State University School of Medicine.
James Henderson, University of Oregon Medical School.
Charles Wilson Jr., University of Texas School of Medicine.
Howard Christian, Tufts College Medical School.
Delegates to the American Medical Association House of Delegates:
Warren Mullen, University of Michigan Medical School.
Harry Sandberg, University of Illinois College of Medicine.

MEMBERSHIP DRIVE

The fact that the constitutional convention was held in the middle of the school year presented organizational handicaps. Despite this, 41 schools were organized and the chapters in those schools had ratified the constitution by the end of March, 1950. These charter members represent more than 14,000 stude The beginning of the 1951-52 school year presented the offi of the Student American Medical Association with a challe to organize as many chapters as possible by the end of 1951. this end a concentrated organizational membership drive undertaken by the Council at its September meeting. Since drive began, the qualifying steps which will allow them to m bership as constituent chapters have been taken in 20 schools

COOPERATION

Letters were written to every constituent state medical a ciation outlining past progress of the Student American Me Association and inviting the state groups to a role of active c eration and participation with both the national organiza and the local student academic societies. Typical of the resp is the following:

"The Council of the California Medical Association is stro behind the idea of supporting the ideals of the S. A. M. A. has agreed to pay the expenses of one or two representative each chapter to the annual state meeting as well as to pay the penses of one representative from each chapter to the an meeting of the S. A. M. A."

This type of cooperation has been forthcoming from most of state medical associations.

IMPORTANT EVENTS

Two important events served to distinguish the first 12 mo of the Student American Medical Association. Both were of e importance and will serve now and in future years to add stren and virility to this student organization.

JOURNAL

Deserving of immediate attention is the soon-to-be-publi *Journal of the Student American Medical Association.* The issue will appear during the last week of December, 1951, will be mailed to more than 33,000 medical students and int in the nation. Conception of the Journal came in July of after much survey, investigation and deliberation by the off and persons in the publication field. Following a meeting o Publications Committee, a decision was reached to begin p cation January, 1952. A managing editor has been employe the nucleus of the editorial staff for the new publication an first issue is well on the way to becoming a reality.

BENEFITS AND OBJECTIVES

The second important event was the formulation of a s benefits and objectives for the association. These statemen purpose outline for the members and those outside the orga tion the short and long-range objectives of the group. They been widely circulated in order that the organization might per through a definite statement of objectives.

MISCELLANEOUS

Three issues of "News Vox," a four page newsletter of i mation and progress were distributed to more than 1,000 per

The Council of the Student American Medical Associ held two meetings during the year.

Mr. Leo Brown, first executive secretary of the organiza was succeeded in July by Mr. Russell F. Staudacher.

APPRECIATION

The members of the Student American Medical Associ are sincerely indebted to the medical profession for all the and cooperation so freely given during this first year of or zational life. Thanks also are due to those lay persons whose acts and words helped the group over many initiatory rough s Special gratitude is due the American Medical Association f generosity in providing personnel and suitable space for th ministrative operations. THE JOURNAL OF THE AMERICAN MED ASSOCIATION and all of the state medical journals are also commended for active editorial support of the aims and i of this new organization.

The continued cooperation of all members of the medical fession coupled with earnest effort on the part of Student A can Medical Association members will do much to insure a and prosperous life for the organization.

Respectfully submitted,

WARREN MULLEN, President.
HARRY W. SANDBERG, Vice President.
DAVID BUCHANAN, Treasurer.
MR. RUSSELL F. STAUDACHER, Executive Secretar

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PARENTERAL ALIMENTATION WITH INVERT SUGAR

Invert sugar was used parenterally in place of glucose during both the first and second world wars.[1] Since it was considered merely a substitute, however, its use was almost entirely abandoned when adequate supplies of glucose again became available.

Present day emphasis on the desirability of maintaining adequate caloric intake in patients unable to eat the requisite amounts, coupled with the limited rate at which glucose is utilized, led to the re-evaluation of invert sugar for use in parenteral alimentation. Weinstein [2] noted that invert sugar could be injected at a rate of 1.5 gm. per kilogram of body weight per hour, without producing diuresis and with the loss of only insigificant amounts of sugar in the urine. In contrast, equal quantities of glucose could be given no faster than 0.78 gm. per kilogram per hour and even at this rate (approximately one-half that at which the invert sugar was given) almost 10 times as much sugar was spilled in the urine. Gram for gram, the caloric values of the two sugars are the same, 10% solutions furnishing approximately 400 calories and 5% solutions 200 calories per liter. But, since the administration of 10% invert sugar solution requires no more time or fluid volume than does 5% glucose solution, patients can be given twice as many calories.

Since invert sugar is composed of equal parts of dextrose (D-glucose) and levulose (D-fructose), the fact that it is utilized twice as rapidly as glucose must be due to metabolic factors inherent in the sugars. Fructose is more readily phosphorylated and more rapidly utilized than is glucose [3] and is known to be a better glycogen former.[4] It has also been shown that, when fructose and glucose are given together, the amount of glucose disappearing from the circulation is greater than when glucose is given alone.[5] It would appear, therefore, that the rapidity with which invert sugar is utilized is probably due to (1) the more rapid utilization rate of the fructose portion; (2) the catalytic influence of the fructose on the glucose portion; or (3) a combination of the two. Further study will, no doubt, give more information on the physiologic basis for the marked difference in utilization rates of the two sugars. On the basis of the clinical and experimental work already done, however, it would appear that the advantages offered by the greater caloric value, without an increase in fluid volume, of invert sugar solutions should prove useful in patients requiring parenteral carbohydrate alimentation.

CIVIL DISASTERS AND CIVIL DEFENSE

For several years, the medical profession has taken an active part in spreading the message of civil defense within its own ranks and to the population generally. Although encouraging progress has been made, the real test of medical civil defense planning will involve a tedious and monotonous continuation of practice sessions and "dry runs."

A vivid setting for such testing has been furnished by a series of recent civil disasters, the most recent of which was the flood in eastern Kansas and western Missouri. The story of the flood was dramatized by thousands of individual tragedies; by homes swept away; by huge accumulations of debris; by stranded and killed livestock; and by inundated bridges and buildings.

The experience was terrifying and extremely costly; yet by comparison with sudden enemy attack it was a Sunday school picnic. What would our profession have done if, with much less warning, we had been confronted with an atomic attack with its hundreds of thousands of burn, blast, shock and radiation casualties, with its utility failures and its food, water and medical supply shortages? Would medical care systematically have been made available? Would our civil defense organization have swung into action in an efficient manner? Would you have known, as an individual, where to report and what your responsibility was? If all of these questions cannot be answered affirmatively, civil defense prepardedness is still a hazy mirage.

Fortunately, in the Kansas and Missouri flood the thousands of bodies swept away by water were those of livestock and not humans. There were no epidemics as a result of the flood. Human casualties were miraculously few. Therefore, although a variety of disaster medical problems were presented, the medical care required was primarily of a preventive nature. This care for the most part consisted of (*a*) immunization, (*b*) segregating communicable diseases, (*c*) prevention of spread of pediculosis, (*d*) supervision of sanitary safeguards, such as water purification, and (*e*) treatment for exposure and colds.

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[1] Cousin, and Fagon: Invert Sugar Therapy, Bull. des Travaux de la Société de Pharmacie de Bordeaux **3:** 161, 1937; abstracted, J. Pharm. & Pharmacol. **139:** 214 (Aug. 21) 1937. Kerr, S. E., and Pauly, R. J.: Invert Sugar as Substitute for Glucose in Intravenous Therapy, Surg., Gynec. & Obst. **74:** 925 (May) 1942.

[2] Weinstein, J. J.: Intravenous Infusions of "Invert Sugar": Preliminary Report, M. Ann. District of Columbia **19:** 179 (April) 1950; Parenteral Therapy with Invert Sugar, Ann. West. Med. & Surg. **4:** 373 (Aug.) 1950; Tolerance of Human Beings to Intravenous Infusions of 15% Invert Sugar, J. Lab. & Clin. Med. **38:** 70 (July) 1951; Comparative Utilization of Invert Sugar and Dextrose in Nondiabetic Human Beings, M. Ann. District of Columbia **20:** 355; 408 (July) 1951; Weinstein, J. J., and Lane, G. F.: Rapid Infusions of Invert Sugar, ibid. **20:** 186; 242 (April) 1951.

[3] Vestling, C. S., and others: Rat Liver Fructokinase, J. Biol. Chem. **185:** 789 (Aug.) 1950; Weichselbaum, T. E., and others: Comparative Utilization of Fructose and Glucose Given Intravenously, Proc. Soc. Exper. Biol. & Med. **75:** 816 (Dec.) 1950.

[4] Everett, M. R.: Medical Biochemistry, New York, Paul B. Hoeber, Inc., 1942, p. 291; Deuel, H. J., Jr.: The Intermediary Metabolism of Fructose and Galactose, Physiol. Rev. **16:** 173 (April) 1936; Cori, C. F.: The Rate of Glycogen Formation in the Liver During Absorption of Fructose and Galactose, Proc. Soc. Exper. Biol. & Med. **23:** 459 (March) 1926; Nutter, P. E., and Murlin, J. R.: Glycogen Formation in Liver and Muscle from Glucose and Fructose after Extreme Muscular Exhaustion, J. Nutrition **21:** 439 (May) 1941; Blume, W., and others: Glycogen Deposit in the Liver, Heart and Body Musculature of Rats after Oral Administration of Glucose and Invert Sugar, Ztschr. ges. inn. Med. **5:** 105 (Feb.) 1950.

[5] Fletcher, J. P., and Waters, E. T.: The Effect of Fructose on the Glucose Tolerance Curve, Biochem. J. **32:** 212 (Feb.) 1938; Corkill, A. B., and Nelson, J. F.: The Influence of Fructose upon the Peripheral Utilisation of Glucose, Australian J. Exper. Biol. & M. Sc. **18:** 171 (June) 1940; The Influence of Fructose on the Utilisation of Glucose by Isolated Muscle, ibid. **25:** 347 (Dec.) 1947.

These services were performed satisfactorily despite a number of unforeseen complications. The decrease in water pressure caused by the flood rendered inoperative the sanitary facilities in many doctors' offices and hospitals. Air conditioning was cut off in certain hospitals, resulting in a lack of ventilation. Sanitary safeguards were jeopardized because of a shortage of pure water. Other facilities imperative for maximum medical efficiency, such as lighting, heat, and refrigeration, were in imminent danger of failure.

In supplying disaster and rehabilitative services, almost complete reliance, at least in certain areas, was placed on the armed forces and private enterprise for supplies, personnel, and transportation. This method of operation was bound to raise questions as to the existence of a local civil defense organization and its ability to handle an emergency of this type.

A well-planned civil defense organization had been set up in the stricken areas. Although individual civil defense volunteers and scattered local civil defense units were utilized, the over-all civil defense organization was not called into action. The reason for this lack of civil defense activity was a provision in local civil defense legislation which limited employment of civil defense forces to situa[illegible] resulting from an enemy attack. Since the time of [illegible]e flood, an aroused and civic-minded citizenry has demanded revised legislation and a type of official thinking that will permit integrated disaster planning.

The concept of the meaning of "civil defense" in the minds of legislators and the general public is apparently too closely allied with atomic, biological, and chemical warfare. Actually civil defense means "the preparation for, and the carrying out of, all emergency functions, other than functions for which military forces or other federal agencies are primarily responsible, to prevent, minimize, and repair injury and damage resulting from disasters caused by enemy attack, sabotage, or other hostile actions or by fire, flood, or other causes." The flood, from which areas of Kansas and Missouri are still recovering, is the exact type of peacetime emergency which the definition of civil defense envisions.

Out of a disaster of this type we must learn certain specific lessons and come to a realization that living in the present era requires that organizations and individuals subject themselves to cooperative civil defense planning and practice. Some of the medical lessons would include (*a*) the necessity for stockpiling vital medical supplies by properly constituted civilian authorities; (*b*) the establishment of emergency water purification facilities; (*c*) the establishment of alternative emergency measures for supplying lights, heat, refrigeration, ventilation, etc., in hospitals and other permanent and improvised treatment centers; and (*d*) the formulation an implementation of adequate mutual aid and mobile support agreements.

In addition, it appears advisable to review local enabling legislation and remove any hampering limitation which preclude civil defense authorities from fulfillin their mission as outlined above. Probably as importan as any of the items mentioned is the demonstrated nee for clear-cut lines of authority. There can be no indecision, no vague chain of command, if an atomic bom falls.

If we learn as a profession and as a nation from suc national disasters as the Kansas-Missouri flood, the civi defense lessons which are thus so expensively taught, we may be prepared to cope with the infinitely greater emergency that an all-out war would bring. It is time to realiz that civil defense is not a game or a scheme but, rathe a new and important civic responsibility and a pattern fo national survival.

SUBNUTRITIONAL PHAGOCYTOSIS

Numerous investigators[1] have described an increase resistance to infectious disease due to undernourishmen In order to throw light on the probable mechanism of th subnutritional immunity, Kuna[2] and associates of t Veterans Administration Hospital, Staten Island, N. Y studied the differences between in vivo phagocytosis adequately fed and in partially starved laboratory an mals. The work was done on adult albino rats. Prior starvation each rat had received a plentiful supply Rockland Farm "rat pellets," supplemented by green Phagocytic activity in rats deprived of food for 36 hou was compared with that of well-fed animals.

To make the tests 20 cc. of a standard suspension nonhemolytic Staphylococcus aureus was injected intr peritoneally into each rat. Peritoneal samples were r moved two to four hours later and examined for cellul content and phagocytic activity. The average number leukocytes per cubic millimeter of peritoneal fluid wa practically identical in the two series, i. e., 14,300 p cubic millimeter. Thirty-eight per cent of the leukocyt showed phagocytosis in the starved group, compared wi but 19% in the controls. The average number of phag cyted bacteria was 423 per 100 leukocytes in the starve group and only 129 per 100 leukocytes in the control The starved rats thus showed twice the control percenta of phagocytizing leukocytes, each of which had engulfe on an average three times the control number of bacteri The clinical significance of these observations is not y evident, but the data accumulated suggest the need fo additional studies.

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[1] Reiner, L., and Paton, J. B.: Apparent Increased Resistance of Vitamin B-Deficient Rats to Acute Infection, Proc. Soc. Exper. Biol. & Med. **30**: 345, 1932. Rous, P.: A Sarcoma of the Fowl Transmissible by an Agent Separable from the Tumor Cells, J. Exper. Med. **13**: 397, 1911. Kearney, E. B.; Pond, W. L.; Plass, B. A.; Maddy, K. H.; Elvehjem, C. A., and Clark, P. F.: Effect of Thiamine Deficiency on Western Equine Encephalomyelitis in Mice, J. Infect. Dis **82**: 177, 1948.

[2] Kuna, A.; Blattenberg, B., and Reiman, J.: Effect of Starvation on Phagocytosis in Vivo, Proc. Soc. Exper. Biol. & Med. **77**: 510, 1951.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Summary of Important Bills

Following is a brief summary of the more important medical and health legislative activities of the 82nd Congress, first session. All bills and resolutions not enacted into law during the first session could be considered and passed before the adjournment of the second session next year. The numbering of these bills remains the same and will continue consecutively for both sessions.

There were 9,615 legislative measures introduced, of which 179 were of such medical and health significance that they were analyzed and reported in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and followed by the Washington Office. Some of the legislation approved by the American Medical Association was enacted into law; none of the bills it actively opposed became law. There were no hearings on bills proposing national compulsory health insurance or federal aid to school health programs. Hearings were held on these subjects during the last Congress.

Bills Which Became Law

H. R. 3298, a bill originally introduced by Representative Durham of North Carolina, became Public Law 215 on Oct. 26, 1951. It amends the Federal Food, Drug and Cosmetic Act, defining prescription drugs by statute and requiring manufacturers to use a caution legend on them. It also legalizes telephone prescriptions from licensed practitioners. Pharmacists may refill prescriptions for nondangerous drugs without permission. It does not amend or conflict with the existing laws controlling narcotics. The law becomes effective April 26, 1952, and will be administered by the Food and Drug Administration.

S. 349, introduced by Senator Maybank, of South Carolina, became Public Law 139 on Sept. 1, 1951. This Defense Housing and Community Facilities and Service Act provides, among other things, for the authorization of loans and grants for construction of hospitals in certain areas designated by the President. Although this bill became law, Congress has not yet appropriated money necessary for launching the hospital phase of the program.

S. 1, originally introduced by Senator Johnson of Texas, amending the Selective Service Act and establishing a commission for studying universal military training, became Public Law 51, June 19, 1951. One of the changes which this law brings about is the extension of the period of service required under the doctor draft law from 21 to 24 months.

H. R. 3193, a bill introduced by Representative Rankin of Mississippi, became Public Law 149 on Sept. 21, 1951, after Congress over-rode a presidential veto. The law provides $120 monthly to veterans with non-service-connected disabilities who need the services of a full-time attendant at home. Other bills relating to veterans that became law are S. J. Res. 72, by Senator George of Georgia, which, as Public Law 28, makes veterans of the Korean War eligible for medical, hospital, compensation, and pension benefits to the same extent as veterans of World War II; H. R. 320, stating that psychoses developing in veterans of World War II and of the Korean war within two years following discharge from active service shall be presumed to be service connected; H. R. 3205, providing the same service connected presumption for multiple sclerosis; S. 1864, another bill that became law after Congress over-rode a veto by President Truman, extending for three years the program by which the government furnishes automobiles to certain eligible disabled veterans of World War II and the Korean war.

Progress of Major Health Bills

Several important health bills have passed either the Senate or the House, and these await action by the other body of Congress before becoming law. S. 445, which would provide federal grants to states for local public health units, passed the Senate by unanimous consent March 12, 1951, and was sent to the House. Hearings were held in the House on this bill and on H. R. 274, a companion bill, but the committee took no further action. H. R. 5426, which proposes to rewrite the laws pertaining to the reserve components setting up the Ready Reserve, Standby Reserve, and Retired Reserve, was passed by the House Oct. 15, 1951, and sent to the Senate. These bills are halfway through the legislative process, and their consideration by Congress probably will be continued during the second session.

Several bills likely to be acted on next year have been considered in committees, but none has passed either House of Congress. S. 337, Federal Aid to Medical Education, early in the first session was reported out of the Senate committee unanimously and without hearings. It was returned to the Senate Labor and Public Welfare Committee on Oct. 3, 1951, after the defeat of the first committee amendment. The committee on Oct. 18, 1951, two days prior to adjournment, again reported the bill and placed it on the calendar. H. R. 910, Federal Aid to Nurse Education, was the subject of public hearings by the House Interstate and Foreign Commerce Committee, but no further action has taken place. There is a companion bill in the Senate, but no hearings were held on it.

Of interest to the profession were several amendments to the tax bill: the Jenner amendment, permitting states to disclose names of public assistance recipients passed; the Ives amendment, which was withdrawn, would have permitted tax deduction for certain professional persons for annuity premiums; the Ecton amendment, which was defeated, would have permitted deduction of medical expenses from taxable income. A provision permitting such a deduction for persons over 65, however, was passed.

Special Studies and Investigations

Congress, especially the Senate, has been engaged in investigations and special studies of interest to the medical profession. The Senate Committee on Labor and Public Welfare, after a study made during the first part of the year, published a comprehensive report, "Health Insurance Plans in the United States," under the direction of Dr. Dean Clark. A Senate subcommittee investigated the administrative and professional policies and practices in the Veterans Administration after the discharge, last January, of Dr. Paul B. Magnuson. It made several recommendations for internal reforms, but no bill has yet been introduced to correct any deficiencies found. A special committee of the House has been making a study of the uses of chemical additives in food products to ascertain whether proper safeguards for consumers were being taken.

Pending Legislation to Be Considered Next Year

In addition to the bills mentioned above, on which some action has been taken, other subjects will probably receive attention by Congress next year. These include S. 1245, a bill introduced by Senator Humphrey of Minnesota, and S. 2337, introduced by Senator Lehman of New York, both to establish an emergency maternity and infant care program (EMIC). Several companion bills on this subject are pending in the House. S. 1140 would create a Department of Health with cabinet status, and several companion bills in the House are pending without prior activity during this Congress. S. 1875, a bill providing federal assistance to cooperative and other nonprofit health associations may be considered in the Senate. The subject of federal grants to states and counties for the prevention of chronic diseases (S. 2246) may receive additional consideration next year.

A more detailed report, summarizing federal legislative action on medical and health bills, appears in Bulletin No. 37, Nov. 16, 1951, published by the Washington Office.

FIFTH GENERAL ASSEMBLY OF THE WORLD MEDICAL ASSOCIATION

The Fifth General Assembly of the World Medical Association, which was held in Stockholm, Sweden, Oct. 15-20, 1951, was attended by representatives of 30 nations and 20 national and international organizations. In his opening address, the retiring president, Dr. Elmer L. Henderson of the United States, reviewed the activities of the association, the relationships that have developed with other international bodies, and its accomplishment in spreading international good will. The Swedish minister of the interior brought a message of greeting from His Majesty the King of Sweden, who was the patron of the assembly.

Dr. Dag Knutson of Sweden, the president-elect, was then inaugurated. In his address, Dr. Knutson recognized the increasing interchange of ideas between nations and international bodies. He stated that if the World Medical Association is to attain its high aims, including aiding all men to reach a better state of health, its work in the international field is indispensable.

The World Health Organization, the Committee for the Coordination of International Medical Congresses, and the International Labor Organization all presented greetings. Two new members were admitted, the national medical associations of Haiti and the Republic of South Korea. Delegates from Western Germany, Japan, and Thailand were present for the first time.

One of the important actions of the assembly was to demand revision of one section of the Draft Covenant on Human Rights. In this proposed article there is a statement that each state agrees to provide legislative measures to promote and protect health. The assembly paid tribute to the intent of the covenant and recognized that the highest standards of health should be available to all people. It also recognized that legislation is necessary to carry out certain aspects of the health problem. Nevertheless, the desired aims in some phases may be, and frequently are, accomplished with or without legislation or with legislation limited to certain categories of persons or services. The following statement appears in the resolution adopted by the assembly:

"The World Medical Association, however, is of the opinion that the proposed methods of implementation of the intent of this covenant are incomplete. The state is not the only body that can or should be called upon to provide the necessary service. The attempt to safeguard the rights of the individual has on i in points disregarded not only the rights of the people to termine certain matters for themselves but the right of certain voluntary groups to aid in raising the level of health. No provision is made for seeking the advice of those who are best qualified to implement any program of health, namely, the medical profession." It was decided to make a survey of the existence of certain types of cancer in relation to geographic and other conditions. In its study on hospitals, it was decided to expand it to cover hospital personnel.

Reports were received from the assistant secretaries for Latin America, Europe, Asia, and Australasia. The one exciting most comment was the one from Australasia, which outlined the new health program brought about in Australasia through the cooperation of the Australian Medical Association and the ministry of health of Australia.

In accepting the report of the Committee on Medical Care and Allied Subjects, of which Dr. R. L. Sensenich, U. S. A., is chairman, the assembly urged all national medical associations to press for controlled clinical trials in the country of origin of all new remedies before they are generally released for medical practice.

There was prolonged discussion on the report of the Committee on Medical Education (Dr. J. A. Pridham, England, chairman). The assembly decided to sponsor an International Conference on Medical Education in 1953. This conference will bring together representatives of medical education and practicing physicians from all over the world. Three general topics will be discussed.

1. What is the aim of undergraduate medical education?

2. What should be the requirements for entrance to medical study?

3. What stress should be placed in the curriculum on preventive medicine, social medicine, general clinical medicine, specialization, and psychosomatic medicine? Other international organizations, such as WHO, CCICMS, and UNESCO, will be invited to participate.

A long discussion took place on the report of the Committee on Social Security (Dr. Dag Knutson, Sweden, chairman). In discussing this report, Dr. P. Glorieux of Belgium stated that constructive action must develop from study and research on this problem. The prestige of WMA can be maintained and further developed only by converting thought and speech into action.

It was apparent from the discussion that there was an increasing tendency for government inroads into the practice of medicine and that no one present was in favor of state medicine. While the problem varies somewhat in the various countries and the solution of the problem must also vary, the undercurrent of the discussion and consensus of the speakers is shown by the following statements.

Dr. Cibrie of France stated that voluntary insurance is th system of preference, for it stimulates personal responsibility Dr. Moran of Ireland commented that human rights imply personal responsibility and that the first human responsibility i the right of the individual to work out his own spiritual an material salvation. The Australian report stated that the cance of social regimentation must be avoided at all costs.

Dr. Gregg of Great Britain remarked that the medical profession might help governments to find more profitable fields if it carried on speaking and activity in such matters as housing, nutrition, and labor conditions. If these matters were attended to, he said, there would be less need for medicine and doctoring in the ordinary sense of the terms. Several national association presented resolutions which were adopted calling on the association for action in various fields.

A scientific session was held, and the following papers wer given: "Prophylactic Treatment Against Pulmonary Tubercul sis," by Prof. Arvid Wallgren, Stockholm; "Therapeutic Trea ment in Pulmonary Tuberculosis," by Dr. Kjeld Torning, Cope hagen; and "Cardiovascular Diseases as a Problem of Medic Organization," by Dr. Gunnar Biorck, Malmo, Sweden.

Television of surgical operations was provided every mor ing by E. R. Squibb & Sons.

Athens, Greece, was selected as the site of the Sixth Gener Assembly (1952). Amsterdam, Holland, was chosen for t Seventh General Assembly (1953), and Rome, Italy, for t Eighth General Assembly (1954).

Prof. Georges Krimpas of Greece is the new president-ele New members of the council are Dr. P. Glorieux of Belgiu Dr. E. L. Henderson of the United States, and Dr. L. R. Mall of Australia.

Other events in connection with the meeting were visits t Karolinska and Söder Hospital, the two largest and most mode hospitals in Sweden. Social events included the Annual Dinr of the World Medical Association, tendered by the Swedi Medical Association at the Grand Hotel. At this dinner the Fl of the World Medical Association was presented to the Swedi Medical Association. A soirée at the National Museum pr vided the delegates and their guests with an opportunity to enj the art collection and listen to a concert of Swedish music play by a string ensemble.

One day was devoted to an excursion through Stockhol The delegates and their guests were taken by motor boat und the numerous bridges of Stockholm to the home of the la Prince Eugen at Valdemarsudde. Luncheon was served at t open-air Museum Shansen. After luncheon the excursion co tinued through the magnificent Town Hall and then to Dro ningholm, the summer residence of the late King Gustaf V. T was served, and the day was concluded with a program at t Drottningholm Theatre, in which original scenes, costumes, ar scripts of the 17th century are still used.

From both a social and a business standpoint, this was t most successful general assembly the World Medical Associatio has ever held. The activities are now beginning to take defini form toward the fulfilment of the objectives of the associatio and the delegates returned to their home countries convince of the need to further the work of the association and with hig regard for the hospitality of Swedish physicians.

MEDICAL NEWS

CALIFORNIA

Mobile Physical Therapy Unit.—On October 1 the Northern California Chapter of the Arthritis and Rheumatism Foundation initiated a mobile physical therapy unit for rheumatoid arthritics who reside in San Francisco. The unit operates under the guidance of the foundation's medical and scientific committee and is designed to provide prescribed physical therapy to patients unable to leave their homes. Treatments are administered by a registered therapist who also trains the patients to help themselves. For the present, service will be limited to patients of arthritis clinics which provide social service. All treatments will be on a basic visit charge, adjustable to the ability of the patient to pay. Clinic social service workers will determine the patient's fee classification. Eventually the service may be made available to private patients of physicians specializing in this field. The Mobile Therapy Unit has been made possible by the contributions received in the past; contributions in the future will determine the extent to which the project may be carried on.

CONNECTICUT

Personal.—Ira V. Hiscock, chairman, department of public health, Yale University, New Haven, has been appointed chairman of the Health Information Foundation's Advisory Committee on Community Health Facilities Research, succeeding the late Dr. John B. Pastore.

Funds for Medical Education.—The Connecticut State Medical Society will canvass every member in a campaign for the American Medical Education Foundation. The canvass is under the direction of the society's Committee on Public Relations, Dr. William G. H. Dobbs, Torrington, chairman.

Professional Relations in Medical Care Insurance.—The Council of New England State Medical Societies held a symposium on this subject November 18 in Boston. "Medical Service Insurance Plans Viewed by Practicing Physicians" was discussed by Drs. Charles L. Farrell, Pawtucket, R. I.; Joseph A. Holmes, Waltham, Mass.; and Daniel J. Sullivan, Nashua, N. H. In addition to officials of the Blue Shield Plan, Dr. William H. Horton, New Haven, Conn., managing director of the Connecticut Medical Service, spoke on "The Structure of Fee Tables in Medical Service Insurance." The after-dinner speaker was Dr. Louis H. Bauer, Hempstead, Long Island, N. Y., President-Elect, American Medical Association.

GEORGIA

Symposium on Exfoliative Cytology.—The Medical College of Georgia announces a second symposium on exfoliative cytology, cancer detection and diagnosis, for Dec. 9-11, 9-14, and 9-21. This will be presented under the direction of Dr. Haims E. Nieburgs and staff. In addition to the faculty of the medical college, the following guest lecturers are scheduled: Dr. Leland D. Stoddard, Kansas City, Kans.; Dr. Abraham E. Rakoff, Philadelphia; Dr. Willis E. Brown, Little Rock, Ark.; Col. Joe M. Blumberg, Washington, D. C.; Mrs. Ruth M. Graham, Boston; Dr. Louis M. Hellman, Brooklyn; Joseph K. Cline, Ph.D., Birmingham, Ala.; Dr. W. Kenneth Cuyler, Durham, N. C.; Dr. John E. Dunn Jr., Bethesda, Md.; Dr. Mortimer A. Benioff, San Francisco; Dr. Peter A. Herbut, Philadelphia; Dr. Ira T. Nathanson, Boston; Dr. Paul Wermer, Chicago, and Dr. Ingrid Stergus, Rome, Ga. A concentrated program of teaching on the fundamentals of cancer, cytology, and diagnostic procedures is provided. Adequate facilities are offered for microscopic and laboratory practice. A second week is offered for those who wish to devote their time entirely to the study of the ample material available.

ILLINOIS

Civil Service Examinations.—Physicians, psychiatrists, and tuberculosis control physicians are being offered immediate civil service employment with the state of Illinois through continuous examinations. State residence is not necessary. Candidates do not take a written examination. Positions are offered immediately to those who qualify after an oral test or interview. Application forms may be obtained from the Illinois Civil Service Commission, Armory Building, Springfield, Ill.

Chicago

Personal.—At the International Congress on Allergy held at Zurich in September, Dr. Samuel M. Feinberg was chosen president-elect of the newly formed International Association of Allergology.

Promotions to Full Professors.—The following five members of the University of Chicago Medical School have been named to full professorships: Drs. J. Garrott Allen and Dwight E. Clark (surgery), Leon O. Jacobson and Joseph B. Kirsner (medicine), and F. Howell Wright (pediatrics).

Gradle Eye Section Dedicated.—The new $12,000 Harry S. Gradle eye section of the Mandel Clinic at Michael Reese Hospital was dedicated October 13. Dr. Gradle, who died in May, 1950, had practiced more than 35 years in Chicago. The section will be used to treat Mandel Clinic patients and for physicians to receive training in ophthalmology.

Fenger Lecture.—The 15th Christian Fenger Lecture of the Institute of Medicine of Chicago and the Chicago Pathological Society will be given at 8 p. m. November 23 at the Palmer House by Anton J. Carlson, Ph.D., Frank P. Hixon Distinguished Service Professor of Physiology Emeritus, University of Chicago. He will speak on "Some Medicosocial Problems Created by Modern Medicine."

Annual Meeting of Institute of Medicine.—The annual dinner of the Fellows of the Institute of Medicine of Chicago will be held at the Furniture Club of America December 4. The presidential address will be delivered by Dr. Walter H. Theobald, clinical professor of otolaryngology, University of Illinois College of Medicine, and president of the Chicago Medical Center Commission, on "The Medical Center District—Its Civic Significance."

Blood Bank at Billings Hospital.—The Bernard Brown Blood Bank at Albert Merritt Billings Hospital was dedicated November 11. It will supply whole blood and plasma to physicians and research workers studying cancer at Nathan Goldblatt Cancer Research Hospital and cancer units of the University of Chicago Medical Center. Funds for the bank were raised by employees of Goldblatt Brothers stores. The bank was named for Mr. Brown, who was vice-president of the company before he was killed in an automobile accident last spring.

LOUISIANA

Annual Lectures.—The annual Oncology Lecture of the Louisiana State University School of Medicine will be delivered November 29 at 8:15 p. m. in Charity Hospital Auditorium, New Orleans. Dr. Gustaf E. Lindskog, professor of surgery, Yale University School of Medicine, New Haven, Conn., will speak on "Diagnosis and Treatment of Mediastinal Tumors."

The annual Musser Lecture of Tulane University of Louisiana School of Medicine will be given by Dr. O. H. Perry Pepper, professor of medicine at the University of Pennsylvania, Philadelphia. He will speak at 8 p. m. November 30 in Hutchinson Memorial Auditorium, New Orleans, on "Geriatrics, Past, Present and Future." Preceding the lecture the Musser portrait by Dr. Hugo T. Engelhardt will be unveiled.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

MARYLAND

Personal.—Dr. Donald F. Proctor, associate professor of otolaryngology at Johns Hopkins University School of Medicine, Baltimore, has been appointed professor of anesthesiology and anesthesiologist-in-charge at Johns Hopkins Hospital.

Committee for the Study of Pelvic Cancer.—This committee, authorized April 23 by the house of delegates of the Medical and Chirurgical Faculty of the State of Maryland, has opened an office in the Medical and Chirurgical Faculty Building, 1211 Cathedral St., Baltimore, to study delay periods in the treatment of pelvic cancer and to attempt to reduce this period of delay when possible through open discussion and education. Meetings will be held the third Thursday of each month from 5 to 6 p. m., when selected cases will be discussed. Officers of the committee, all of Baltimore, are Dr. Richard W. TeLinde, chairman; Dr. J. Mason Hundley Jr., vice-chairman, and Dr. Beverly C. Compton, secretary-treasurer.

MASSACHUSETTS

Evening Lecture Series.—The House Officers' Association of the Boston City Hospital has added the following to its evening lecture series:

Dec. 4, Developmental Diagnosis of Infant Behavior: Its Role in Clinical Pediatrics and Child Psychiatry, Dr. Arnold L. Gesell, New Haven, Conn.

Dec. 11, Cardiovascular Visualization, Dr. Charles T. Dotter, New York.

These programs will be held at 7 p. m. in the New Cheever Amphitheatre of the Dowling Building of Boston City Hospital.

Retina Foundation.—The Retina Foundation, begun in April, 1950, has now been organized as a new basic research unit of the Massachusetts Eye and Ear Infirmary, Boston. The foundation, located at 30 Chambers St., Boston, includes laboratories for biochemistry, electron microscopy, tissue culture, and optics. Dr. Charles L. Schepens is director and Dr. E. A. Balazs associate director. The Retina Foundation has received grants from the U. S. Public Health Service, the American Optical Company, the Kresge Foundation, the G. M. Hyams Fund, Inc., the Vivian B. Allen Foundation, the National Council to Combat Blindness, Inc., the Office of Naval Research, and the Committee of the Permanent Charity Fund, Inc.; it is also supported by donations m interested individuals. The work was supported in its initial ges by the Veterans Administration.

MICHIGAN

Tuberculosis Case Finding at Fairs.—Mobile tuberculosis case-finding units of the Michigan Department of Health, operating at 23 fairs this summer and fall, x-rayed the chests of 53,982 persons and found 1,124 chest abnormalities, including 560 cases of suspected tuberculosis. Where the small x-ray film indicated a chest abnormality, the individual was advised by mail to see his physician for a complete examination and any needed treatment. About half the abnormalities found were due to conditions other than tuberculosis.

MISSOURI

Dr. Casberg Resigns as Dean.—Dr. Melvin A. Casberg, since Aug. 1, 1949, dean of St. Louis University School of Medicine, has resigned, effective July 1, 1952, because of an acute sensitivity to giant ragweed pollen found in the St. Louis area, which will necessitate a change of residence.

Director of Mental Health Foundation.—Dr. Milton E. Kirkpatrick, director of the Institute of Mental Hygiene in New Orleans, has become director of the Greater Kansas City Mental Health Foundation. This is a collaborative project of Kansas City, the Community Chest, and the Greater Kansas City Association of Trusts and Foundations, designed to coordinate all the mental health activities in that area. In conjunction with the Kansas City General Hospital, a 100-bed psychiatric receiving center will be erected for which the mental health foundation will be responsible. The Child Guidance Clinic and the Kansas City Mental Hygiene Society will also come under its direction. The foundation has made an initial grant of $250,000 for the development of services of the program. Public education as well as outpatient clinical services for adults and children will be developed. A training program and research unit for which funds are available, will be organized in the near future.

NEW JERSEY

Public School for Palsied Children.—A public school for 49 cerebral palsied children, who have never attended public school, was opened in Clifton this fall in the Passaic County Elks' Cerebral Palsy Center. The children will receive both schooling and therapeutic training there. Specially constructed chairs and tables are provided. Subjects are those taught in the city's regular public schools. Funds for the school are furnished by Clifton and the state, with Passaic County communities paying a share for each cerebral palsied child sent to the school. The three teachers have no more than ten pupils in the class at one time as instruction is largely on an individual basis.

NEW YORK

Public Meeting on Cancer.—The 14th annual public meeting of Nassau County Committee of the American Cancer Society will be held November 29 at the Garden City Hotel. This yearly event, formerly known as the Cancer Institute, is designed to acquaint community leaders with the over-all picture of the cancer problem. The luncheon meeting will be followed by a panel discussion.

Postgraduate Anesthesiology.—The New York State Society of Anesthesiologists will hold its fifth annual Postgraduate Assembly Dec. 5-8 at the Hotel New Yorker in New York. There will be 10 scientific sessions in panel format. One panel will be presented by residents and fellows in anesthesiology discussing original investigations in which they have participated. Physicians desiring to attend may secure a registration form from the office of the society at 137 W. 11th St., New York.

Appoint Assistant Dean for Postgraduate Education.—Th University of Buffalo has established an assistant deanship fo postgraduate education in its school of medicine. Dr. Milto Terris, who has been appointed to the new post, will supervis the school's postgraduate program in western New York and it courses for physicians in such fields as cancer, heart, and pedi atrics, and in general medicine and surgery. His appointmen follows a grant of $24,500 to the university by the state healt department for expansion of regional postgraduate education fo physicians in Erie, Niagara, Genesee, Wyoming, Cattaragus, an Chautauqua counties. The program provides for the conduct c conferences by university faculty members at hospitals in th area and for the assignment of residents from affiliated hospital in Buffalo to the community hospitals requesting them. Fiv hospitals are now associated in the regional program, Wyomin County Community Hospital in Warsaw, Genesee Memori Hospital in Batavia, Mount St. Mary's Hospital in Niagara Fall Brooks Memorial Hospital in Dunkirk, and Olean Genera Hospital in Olean, and it is planned to extend the service t other hospitals in the area. Dr. Terris has been associate stat health officer in Buffalo and in 1945-1946 taught public healt and preventive medicine in the university.

New York City

Personal.—A testimonial dinner to Dr. Martin G. Vorhaus chief of medical services at the Hospital for Joint Diseases, wa given Oct. 11. Dr. Vorhaus has resigned from the hospital wit which he has been associated for 25 years to become directo of a hospital in Toledo, Ohio. The dinner was given by th trustees, medical advisory board, and the medical staff.

Schoenberg Lecture on Glaucoma.—Dr. Paul A. Chandler Boston, surgeon at the Massachusetts Eye and Ear Infirmary will deliver the fifth annual Mark J. Schoenberg Lecture o Glaucoma at the New York Academy of Medicine December 3 at 8:30 p. m. on "Narrow Angle Glaucoma." This lectureship was established as a memorial to the late Dr. Schoenberg. It is jointly sponsored by the National Society for the Prevention of Blindness and the New York Society for Clinical Ophthalmology.

Society News.—The New York Institute of Clinical Oral Pathology held its 150th monthly conference in Hosack Hall at the New York Academy of Medicine on Oct. 29. Dr. Hans Selye, professor and director of the Institute of Experimental Medicine and Surgery, University of Montreal, spoke on "General-Adaptation-Syndrome (including the actions of corticotropin [ACTH], cortisone, and 'somatrofin' [STH], a hormone from beef pituitary glands)."——Dr. Arthur A. Knapp of the teaching staff of New York Medical College will read a paper entitled "Treatment of Eye Disease by Cure of Oral Foci" at the next monthly conference of the New York Institute of Clinical Oral Pathology, which will be held Monday evening, November 26, at the New York Academy of Medicine, Room 440, at 9 p. m.

NORTH CAROLINA

Dr. Gardner Named to Board of Surgery.—Dr. Clarence E. Gardner Jr., professor of surgery, Duke University School of Medicine, Durham, has been elected to the examining board of the American Board of Surgery for a six-year term. Membership on the board is limited to 13 surgeons in the United States.

Symposium at Raleigh.—At a medical-surgical symposium of the Raleigh Academy of Medicine November 2 discussions were held on endocrine diseases. Visiting speakers were Dr. Joseph C. Aub, Boston; Dr. George Crile Jr., Cleveland; Dr. F. Curtis Dohan, Philadelphia, and Dr. Howard F. Root, Boston.

OHIO

Hospital News.—Two additional wings of the receiving hospital at Toledo State Hospital are under construction. The administration wing, among other parts, contains an insulin ward with a recreation room for patients. The patients' wing will provide room for 50 more patients.

Cincinnati Academy of Medicine Programs.—The Academy of Medicine of Cincinnati published its complete scientific program for the year in the October issue of the *Cincinnati Journal of Medicine.* Programs through January are as follows:

Nov. 27, William Dameshek, Boston, Current Concepts of the Purpuras.
Dec. 4, Alan R. Moritz, Cleveland, Medico-Legal Problems.
Jan. 8, John H. Talbott, Buffalo, Gout.
Jan. 22, Panel discussion on Hypertension, Paul D. White, Boston; Irvine H. Page, Cleveland, and Reginald H. Smithwick, Boston.

TEXAS

Children's Medical Center.—A new $4 million hospital and medical center for crippled children is to be set up in Fort Worth. About $1,250,000 has been given to the W. I. Cook Memorial Trust under an agreement providing for conversion of W. I. Cook Memorial Hospital and funds of the Fort Worth Children's Hospital into a new children's medical center. The center is to be known as the W. I. Cook Memorial Hospital for Children. The unit for treatment of crippled children will be designated the Tom B. Owens Institute for Crippled Children. Conversion of Cook hospital into the children's medical center is expected to be completed by December, 1952. Its present value including endowments exceeds $2 million. The Fort Worth Children's Hospital is valued at about $750,000. Expansion plans call for facilities for 75 to 100 children in the new hospital.

WISCONSIN

Infectious Disease Control Unit.—A new infectious disease control unit sponsored by the Marquette University Medical School has been opened at Milwaukee County Hospital. Dr. Francis D. Murphy, head of the Marquette department of medicine, is director of the new unit, which will provide patients having noncontagious infections with all known drugs for fighting these infections. The unit's purpose is to determine which drugs will be beneficial in infectious disease. The program will have a teaching function for the hospital house staff and residents and will offer a consultation service for doctors at the hospital. An anonymous Milwaukee benefactor donated money for the project.

GENERAL

Borden Award.—Dr. Edwin Bennett Astwood of Tufts College Medical School, Boston, received the 1951 Borden Award at the recent annual dinner of the Association of American Medical Colleges in French Lick, Ind. The award, given for research in production of corticotropin (ACTH), is $1,000 in cash and a gold medal.

Much More Measles.—The U. S. Public Health Service, National Office of Vital Statistics, reports that the number of cases of measles for the week ended November 3 (2,085) is more than 50% greater than that for the same week last year (1,315). More than two-thirds of the cases for the week were reported in the New England, Middle Atlantic, and East North Central states.

North Pacific Surgical Association.—This association held its annual meeting November 16-17 in Vancouver, B. C., under the presidency of Dr. Lee Smith, Vancouver, B. C. Dr. Frederick G. Kergin, associate professor of surgery, University of Toronto, Canada, was the guest speaker and delivered the Founders Lecture, on "An Alternative Treatment for Certain Cases of Carcinoma of the Rectum."

American Academy of Forensic Sciences.—The fourth annual meeting of the American Academy of Forensic Sciences will be held March 6-8, 1952, at the Biltmore Hotel, Atlanta, Ga. Those interested in presenting papers are urged to submit their titles immediately to Dr. Abraham W. Freireich, Program Chairman, 180 Hempstead Avenue, Malverne, N. Y. The complete proceedings of the third meeting of the academy are in the hands of the printer. Orders for the proceedings may be filed with Prof. Ralph F. Turner, Department of Police Administration, Michigan State College, East Lansing, Mich. The price is $8 per copy.

International Pharmacopoeia Published.—The first volume of the first International Pharmacopoeia setting uniform standards for important drugs was published October 30 by the World Health Organization in Geneva. The book, prepared on the recommendation of 79 member states by the World Health Assembly, contains descriptions of 200 important drugs defined by chemical, physical, and biological tests and is expected to bring uniformity in standards for drugs utilized throughout the world. The first volume also contains 43 appendixes containing instructions for establishing purity and strength of drugs. The names of drugs are given in Latin. Their adoption will prevent confusion arising from the use of different names for the same drug. The second volume, now under preparation, will deal with penicillin, streptomycin, and other antibiotics. An expert committee of the World Health Organization is meeting in Geneva under the chairmanship of Dr. Charles H. Hampshire of London to prepare the second volume. The first volume is now available in English and French. A Spanish edition will be published in the near future.

Prentiss Award in Health Education.—The Cleveland Health Museum has selected Sally Lucas Jean, former director, Health Education Division, American Child Health Association, and retired director, Education Service, National Foundation for Infantile Paralysis, as recipient of the museum's eighth Elisabeth S. Prentiss National Award in Health Education. The placque and citation, given annually, was presented October 30 at the 11th annual breakfast meeting of the museum's national advisory council, held in San Francisco. In addition to her work as director of the two national organizations mentioned, between 1910 and 1917 Miss Jean served as school nurse in Baltimore, organized its demonstration school in the department of education, and was a lecturer for the Children's Playground Association, Baltimore. Between 1918 and her retirement from the National Foundation for Infantile Paralysis in 1951, she organized the department of health service, People's Institute, N. Y., directed the Child Health Organization of America, developed a health education program for schools in Panama Canal Zone, served in the Philippines and Virgin Islands, and was supervisor of health education for the U. S. Indian Service.

State and Territorial Health Officers.—General Sessions of the annual conference of the Surgeon General of the Public Health Service and the chief of the Children's Bureau with the State and Territorial Health Officers, State Mental Health Authorities, and State Hospital Survey and Construction Authorities will be held November 26-29 in the Auditorium of the Federal Security Building in Washington, D. C. At the Monday morning program addresses will be given by Oscar Ewing, administrator of the Federal Security Agency, Surgeon General Leonard A. Scheele, and Dr. Martha M. Eliot, chief of the Children's Bureau. Elmer B. Staats, assistant director of the Bureau of the Budget, will speak on "Federal Budgetary Procedures and Their Relation to Operating Programs." Community Heart Programs and Congenital Heart Disease will be discussed Wednesday morning by Drs. T. Duckett Jones, New York, and Willis J. Potts, Chicago, respectively. The Public Health Problem of Defense Impact Areas will be presented by Drs. Joseph W. Mountin, Washington, D. C., Mr. Allen Pond, Dr. Katherine Bain, Washington, D. C., and Miss Mildred Arnold. Dr. J. W. Knutson will speak on "Fluoridation of Water Supplies." The conference dinner is scheduled for Monday night.

Western Surgical Association Meeting.—The annual meeting of this association will be held November 29-December 1 at the Broadmoor Hotel in Colorado Springs, Colorado, under the presidency of Dr. Erwin R. Schmidt, Madison, Wis. Those speaking by invitation include the following:

- Arthur J. Hunnicutt, Oakland, Calif., Total Gastrectomy with Transposition of the Terminal Ileum and Right Colon.
- John Reid Brown and John William Derr, both of Detroit, Arterial Blood Supply of the Human Stomach.
- H. Mason Morfit, Denver, Management of Head and Neck Cancer by the General Surgeon.
- Walter W. Carroll, Chicago, Application of Combined Hemimandibulectomy and Neck Dissection to Oral Carcinoma.
- Richard M. Zollinger and Wells H. Teachnor, both of Columbus, Ohio. The Late Results of Inferior Vena Caval Ligations.
- Mordant E. Peck and Robert F. Grover, both of Denver, Cardiovascular Responses to Acute Portal Vein Ligation.
- Russell R. Klein and Robert A. Scarborough, both of San Francisco, Diagnosis and Treatment of Polyps of the Colon.
- Richard Patton, Columbus, Ohio, Potassium Depletion in Surgical Patients.

At the annual dinner, following a cocktail hour at 6:30 p. m., Robert L. Stearns, LL.D., president of the University of Colorado, Denver, will be the speaker.

Radiological Society to Meet in Chicago.—The Radiological Society of North America will hold its annual meeting at the Palmer House in Chicago, December 2-7. Those speaking by invitation include:

- Edward C. Stafne, D.D.S., Dental Roentgenologic Aspects of Systemic Disease.
- Loyal Davis, Chicago, and Stanton L. Goldstein, Hines, Ill., Diagnosis and Localization of Organic Lesions of the Central Nervous System Using Radioactive Diiodofluorescein.
- Erik Poppe, Oslo, Norway, Bronchography with Water-Soluble Resorbable Contrast Material.
- Sidney C. Werner, Howard Hamilton, and Martha Romanchuk, all of New York, Therapeutic Effects in Hyperthyroidism from Repeated Tracer Doses of Radioiodine.
- J. J. Stevenson, London, Horizontal Body Section Radiography.
- Vern W. Ritter, Philadelphia, Roentgen Doses During Diagnostic Procedures.
- Major Marvin M. Keirns, U. S. Army (M.C.), Denver, Two Unusual Tumors of the Diaphragm.

In addition, there will be a symposium on pediatrics Monday afternoon, in which Dr. William M. Benzing Jr. and Dr. Samuel B. Chapman Jr., both of Kansas City, Mo., will be guest speakers. The Rocky Mountain Radiological Society will present a symposium on gastritis Wednesday afternoon, on which invited speakers are Drs. Frank B. McGlone, Denver; Leonard W. Larson, Bismarck, N. D.; Robert R. Kling, Grand Forks, N. D., and William B. Dublin, Fort Logan, Colo. Five papers will be presented in a symposium on radioactive isotopes Thursday afternoon. Invited speakers include George A. Boyd, M.S., and Drs. Marshall H. Brucer, Oak Ridge, Tenn.; Harry D. Bruner, Chapel Hill, N. C.; Jesse Perkinson, Ph.D., Oak Ridge, Tenn., and Gould A. Andrews, Oak Ridge, Tenn. Dr. Robert S. Stone, professor of radiology at the University of California Medical School, San Francisco, will deliver the Carman Lecture, on "The Concept of a Maximum Permissible Exposure," on Tuesday at 8 p. m. The annual banquet will be held Friday at 7 p. m.

Society Elections.—The Association of Military Surgeons of the United States at its annual convention in Chicago in October elected Major General Harry G. Armstrong, Surgeon General of the Air Force, as president. Rear Admiral Winchell McK. Craig, U. S. N. R., Mayo Clinic, Rochester, Minn., was elected as vice-president. Col. James M. Phalen, retired, Washington, D. C., was reelected secretary and Stuart E. Womeldorph, D.C.L., Washington, D. C., was reelected executive secretary. ——Dr. Frederick C. Cordes, San Francisco was named president-elect of the American Academy of Ophthalmology and Otolaryngology Oct. 18 at the annual session in Chicago. Three vice-presidents also were elected: Drs. Georgiana M. Dvorak Theobald, Oak Park, Ill.; Percy E. Ireland, Toronto, Canada, and John S. McGavic, Bryn Mawr, Pa. Dr. William L. Benedict, Rochester, Minn., was reelected executive secretary-treasurer. Presidents of the academy are elected a year in advance and take office on Jan. 1 following the annual meeting. The incoming president will be Dr. James Milton Robb, Detroit, who assumes the office on January 1, 1952.——Officers of the American Dermatological Association, Inc., for 1951-1952 include Dr. Edward A. Oliver, Chicago, president; Dr. Frederick M. Jacob, Pittsburgh, vice-president; Dr. Louis A. Brunsting, Rochester, Minn., secretary; and Dr. Eugene F. Traub, New York, treasurer.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States in the weeks ended as indicated:

Area	Nov. 10, 1951	Nov. 3, 1951	Nov. 11, 1950
New England States			
Maine	1	..	2
New Hampshire	..	..	2
Vermont	..	..	..
Massachusetts	4	2	12
Rhode Island	1	1	1
Connecticut	7	4	16
Middle Atlantic States			
New York	27	53	107
New Jersey	4	13	29
Pennsylvania	21	13	43
East North Central States			
Ohio	12	38	65
Indiana	10	4	31
Illinois	27	32	50
Michigan	36	49	61
Wisconsin	29	45	44
West North Central States			
Minnesota	13	23	13
Iowa	10	8	21
Missouri	20	46	14
North Dakota	1	6	1
South Dakota	1	1	4
Nebraska	8	9	11
Kansas	18	28	18
South Atlantic States			
Delaware	1	1	1
Maryland	..	1	7
District of Columbia	1	1	5
Virginia	4	4	28
West Virginia	7	14	9
North Carolina	4	4	17
South Carolina	..	1	5
Georgia	7	17	29
Florida *	..	1	11
East South Central States			
Kentucky	15	..	6
Tennessee	13	22	13
Alabama	11	16	3
Mississippi	18	23	17
West South Central States			
Arkansas	6	8	4
Louisiana	22	8	10
Oklahoma	7	9	9
Texas	49	46	32
Mountain States			
Montana	1	5	3
Idaho	7	14	4
Wyoming	12	12	..
Colorado	11	19	6
New Mexico	8	13	3
Arizona	8	7	5
Utah	13	12	..
Nevada	..	1	..
Pacific States			
Washington	21	18	23
Oregon	17	26	28
California	106	125	62
Territories and Possessions			
Alaska	..	..	2
Hawaii	1	..	..
United States	620	803	892

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* Report from Florida was not received.

CORRECTION

Industrial Medicine and Surgery.—In the paper by John Eric Dalton in The Journal, Oct. 27, 1951, the statement at the top of page 800, to the effect that *Industrial Medicine and Surgery* was combined in 1950 with other journals to form the *Archives of Industrial Hygiene and Occupational Medicine* was incorrect. *Industrial Medicine and Surgery* is still being published. It was *The Journal of Industrial Hygiene and Toxicology* and *Occupational Medicine* which were combined to form the *A. M. A. Archives of Industrial Hygiene and Occupational Medicine.*

MEETINGS

American Medical Association Clinical Session, Los Angeles, Dec. 4-7. Dr. George F. Lull, 535 N. Dearborn St, Chicago 10, Secretary.

American Association of Medical Clinics, *Mayfair Hotel, Los Angeles,* Dec. 3-4. Dr. Edwin P. Jordan, Box 114, Charlottesville, Va., Executive Director.

American Psychoanalytic Association, Waldorf-Astoria Hotel, New York, Dec. 6-9. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3. Secretary.

Annual Congress on Industrial Health, William Penn Hotel. Pittsburgh, Jan. 18-19. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 14-15. Dr. Clarence C. Hare, 170 Maple Ave., White Plains, N. Y., Secretary.

Association of State and Territorial Health Officers, Washington, D. C., Nov. 26-30. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

International Medical Assembly of Southwest Txeas, Municipal Auditorium, San Antonio, Jan. 22-24. Dr. John J. Hinchey, P. O. Box 2445, San Antonio 6, Secretary.

Medical Public Relations Conference, Biltmore Hotel, Los Angeles, Dec. 2-3. Mr. Leo E. Brown, 535 N. Dearborn St., Chicago 10, Director.

Puerto Rico Medical Association, Santurce, Dec. 12-16. Dr. Victor J. Montilla, P. O. Box 3866, Santurce, Secretary.

Radiological Society of North America, Chicago, Dec. 3-7. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y, Secretary.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 4-6. Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn. Secretary.

Western Surgical Assocation, Broadmoor Hotel, Colorado Springs, Colo., Nov. 29-Dec. 1. Dr. Michael L. Mason, 154 E. Erie St., Chicago 11, Secretary.

INTERNATIONAL

Australasian Medical Congress, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

Commonwealth and Empire Health and Tuberculosis Conference, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

International College of Surgeons, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, *Chicago, Ill., U. S. A.,* Secretary-General.

International Congress on Mental Health, *Mexico City, Mexico, Dec.* 11-19. Mrs. Grace E. O'Neill, Division of World Affairs, National Association on Menal Health, 1790 Broadway, New York 19, N. Y., U. S. A.

International Congress on Neuropathology, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

International Congress of Physical Medicine, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England Hon. Secretary.

Latin American Congress of Physical Medicine, Panama City, R. P., Feb. 24-29. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York, N. Y., U. S. A., Executive Director.

Neuroradiologic Symposium, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

Pan American Congress of Ophthalmology, Mexico City, Mexico, Jan. 6-12. Dr. Luis Sanchez Bulnes, Gomez Farias 19, Mexico 4, D.F., Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Havana, Cuba, Jan. 20-24.

Pan American Congress of Pediatrics, Montevideo, *Uruguay, Dec 5-8.* Dr. Maria Luisa Saldien de Rodriguez, Avenida 18 de Julio, 1246, Montevideo, Uruguay, General Secretary.

Pan American Medical Women's Alliance, Montevideo, Uruguay, Dec. 2-8. Dr. Elizabeth Mason Hohl, 1234 North Vermont Ave., Los Angeles 27, Calif., U. S. A., President.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 24-26, 1952. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery 4.

Colorado:* *Examination.* Denver, Jan. 9-11. *Final date for filing application* is Dec. 10. Sec., Dr. Samuel H. Brown, 831 Republic Bldg., Denver 2.

Delaware: *Examination.* Dover, Jan. 8-10. *Endorsement.* Dover, Jan. 17. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

Florida:* *Examination.* Jacksonville, Nov. 25-27. Sec., Dr. Homer L. Pearson, 701 DuPont Bldg., Miami.

Guam: The Commission on Licensure *will meet whenever a candidate* appears or submits his credentials. Ex. Sec., Dr. John K. Battenfield, Agana.

Hawaii: *Examination.* Honolulu. Jan. 14-17. Final date for filing application *is Dec. 14. Sec., I. L. Tilden, 1020* Kapiolani *St., Honolulu.*

Idaho: Boise, Jan. 7-9. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

Indiana: Indianapolis, June 1952. Sec., Dr. Paul R. Tindall, 1138 K of P Bldg., Indianapolis 4.

Iowa:* *Examination.* Des Moines, Dec. 3-5. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Topeka, Dec. 12-13. Sec., Dr. O. W. Davidson, 772 New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 11-13. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville

Louisiana: *New Orleans, Dec. 6-8. Sec., Dr. Roy B. Harrison, 1507* Hibernia Bank Bldg., New Orleans.

Maryland: *Examination.* Baltimore, Dec. 11-14. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore.

Massachusetts: *Examination.* Boston, Jan. 15-18. Sec., Dr. Robert C. Cochrane, Room 37 State House, Boston.

Mississippi: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. Asst. Sec., Dr. R. N. *Whitfield, Old Capitol Bldg., Jackson.*

Missouri: *Examination.* Jefferson City, Feb. 19-21. *Reciprocity.* Jefferson City, Feb. 11. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Montana: Helena, April 1. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

North Carolina: *Endorsement.* Raleigh, Jan. 21. Sec., Dr. Joseph J. Combs, 419 Professional Bldg., Raleigh.

North Dakota: Grand Forks, Jan. 2-5. Sec., Dr. C. J. Glaspel, Grafton.

Oklahoma:* *Examination.* Oklahoma City, June 4-5. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Examination.* Portland, Jan. 3-5. *Reciprocity.* Portland, Jan. 11-12. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

*Pennsylvania: Philadelphia, Jan 22-25. Acting Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: *Examination.* San Juan, March 4. *Sec., Mr. Luis Cueto* Coll, Box 3717, Santurce.

South Dakota:* *Examination. Sioux Falls,* Jan. 15-16. Ex. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Texas:* *Examination.* Houston, Dec. 3-5. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth.

Virginia: *Examination. Richmond, Dec.* 6-8. Final date for filing application is Nov. 24. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

West Virginia: *Examination.* Charleston, Jan. 7-9. Sec., Dr. N. H. Dyer, Capitol Bldg., Charleston 5.

Wisconsin:* Madison, Jan. 8-10. Sec., Dr. A. C. Koehler, River Falls.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: *Examination.* On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Colorado: *Examination.* Denver, Dec. 5-6. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Minnesota: *Examination.* Minneapolis, Jan. 8-9. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

New Mexico: *Examination.* Santa Fe, Dec. 16. Sec., Mrs. Marguerite Cantrell, Box 1592, Santa Fe.

Oklahoma: *Examination.* Oklahoma, April 14. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, Dec. 1. Sec., Dr. *Charles D. Byrne,* State Board of Higher Education, University of Oregon, Eugene.

South Dakota: *Examination.* Vermillion, Dec. 7-8. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Memphis, Dec. 27-28. Sec., Dr. O. W. Hyman, 864 Union Ave., Memphis.

Wisconsin: *Examination.* Milwaukee, Dec. 1. Madison, April 5. Sec., Mr. W. H. Barber, Ripon College, Ripon.

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* Basic Science Certificate required.

DEATHS

Worcester, Alfred, Waltham, Mass.; born in Waltham, Mass., June 22, 1855; Harvard Medical School, Boston, 1883; professor of hygiene at his alma mater from 1925 to 1935 when he became professor emeritus; deputy commissioner with the rank of major of the American Red Cross for Switzerland during World War I; past president of the Massachusetts Medical Society and Harvard Medical Alumni Association; member of the Boston Obstetrical Society; decorated Officer of the Order of Leopold II, conferred by King Albert of Belgium; trustee of the Massachusetts Hospital for Consumptives from 1897 to 1901 and founder of the Waltham Training School for Nurses; in 1920 chairman of the Massachusetts Commission on Maternity Benefits; author of "Nurses and Nursing," "Nurses for Our Neighbors," "Care of the Aged, Dying and the Dead," "Hygiene for Freshmen," and "Sex Hygiene: What to Teach and How to Teach It" and others; awarded the doctor of science degree by Tufts in 1931; died August 28, aged 96, of coronary occlusion.

Dixon, Robert Livingston, Caro, Mich.; born in Angola, Ind., May 22, 1877; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1910; served on the faculty of his alma mater; member of the American Medical Association and the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology; formerly secretary of the state board of health; past president of the National Association for the Study of Epilepsy; formerly superintendent of the Michigan Farm Colony for Epileptics at Wahjamega, Michigan Home and Training School at Lapeer, and the Caro State Hospital for Epileptics; member of the hospital commission of the Caro Community Hospital; charter member and honorary member of the Caro Rotary Club, of which he had been president; served as president, vice-president, and director of the State Savings Bank; at one time member of the township library commission; died in the University Hospital, Ann Arbor, September 24, aged 74, of coronary occlusion.

Wentworth, John Alexander, West Hartford, Conn.; born in Portland, Me., April 26, 1888; Harvard Medical School, Boston, 1913; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Medical Association and the American Heart Association; served during World War I; consulting physician, Manchester (Conn.) Hospital, Institute of Living and Hartford hospitals in Hartford, New Britain (Conn.) General Hospital, William W. Backus Hospital in Norwich and Windham Community Memorial Hospital in Willimantic; died in Veterans Administration Hospital, Northampton, Mass., September 17, aged 63, of cerebral hemorrhage.

Cook, Robert Jay ⊕ New Haven, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1913; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served during World War I; for many years associated with Yale University School of Medicine; formerly on the faculty of Harvard Medical School in Boston, where he was on the staff of Children's Hospital; attending orthopedic surgeon at Griffin Hospital in Derby, Grace-New Haven Community Hospital, and the Hospital of St. Raphael; died October 4, aged 64, of metastatic carcinoma of the liver.

Wyman, Hugh Evelyn ⊕ Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1925; specialist certified by the American Board of Urology; past president of the South Carolina Urological Association; member of the American Urological Association and the International College of Surgeons; visiting urologist to the Veterans Administration Hospital; on the staff of Columbia and Providence hospitals; consultant to the South Carolina State Hospital, Camden (S. C.) Hospital, and the Newberry County Hospital in Newberry; died in Highland, N. J., September 1, aged 50.

Carle, William Ross, Perry, Ohio; Ohio Medical Universit Columbus, 1901; member of the American Medical Associatio past president and vice-president of the Lake County Medi Society; for many years county coroner and mayor of Per served on the village council; died July 11, aged 77, of injur received when his automobile was struck by a train.

Casey, Thomas H., Lebanon, Mo.; University of Tennes Medical Department, Nashville, 1891; on the staffs of St. Joh Hospital in Springfield and the Louise G. Wallace Hospital; many years county physician; died September 27, aged 83, coronary thrombosis.

Cavins, John Henry, Lexington, Ky.; Kentucky University Me cal Department, Louisville, 1903; died recently, aged 85.

Chauvet, Frank ⊕ Chicago; College of Physicians and Surge of Chicago, School of Medicine of the University of Illin 1907; clinical associate professor of medicine, emeritus, at alma mater; served on the staffs of Cook County and Garfi Park Community hospitals; died in Oak Park, October aged 73.

Cleveland, Luella S., San Jose, Calif.; University of Michig Department of Medicine and Surgery, Ann Arbor, 1893; di in Los Gatos, August 26, aged 84, of cerebral hemorrhage.

Cocuzza, Vincent ⊕ New York; Regia Universitá degli Studi Palermo, Facoltà di Medicina e Chirurgia, Italy, 1904; on staff of Columbus Hospital; died July 28, aged 72, of hyp tensive heart disease.

Cole, Russel Erwin ⊕ Muncie, Ind.; Starling Medical Coll Columbus, 1906; specialist certified by the American Bo of Pathology; member of the College of American Patholog and American Society of Clinical Pathologists; affiliated Ball Memorial Hospital; died September 16, aged 72, of cinoma of the liver.

Collins, Aubrey John ⊕ Boston; Tufts College Medical Sch Boston, 1902; member of the city health department for m years; died October 3, aged 76.

Comeau, Wilfrid Joseph ⊕ Bangor, Maine; Harvard Me School, Boston, 1933; specialist certified by the American B of Internal Medicine; certified by the National Board of M cal Examiners; fellow of the American College of Physici president of the Maine Heart Association; served during W War II; on the staff of Eastern Maine General Hospital; sulting cardiologist at the Veterans Administration Cente Togus; died September 6, aged 44, of coronary thrombosis.

Conway, John Joseph, Mount Carmel, Pa.; Jefferson Me College of Philadelphia, 1920; member of the American M cal Association; served during World War I; formerly affili with the Veterans Administration in Pottsville; died in the erans Administration Hospital, Wilkes-Barre, September aged 55, of pneumonia.

Corcoran, Michael Patrick, Philadelphia; University of P sylvania Department of Medicine, Philadelphia, 1910; se on the staffs of the Fitzgerald Mercy Hospital in Darby, Mi cordia Hospital and St. Joseph's Hospital, where he died cently, aged 63, of diabetes mellitus.

Corey, George Boaz, Brooklyn; Howard University Colleg Medicine, Washington, D. C., 1897; died September 28, aged

Crocker, Harvey James, Essex, Mass.; Tufts College Med School, Boston, 1942; member of the American Medical A ciation; served during World War II; school physician physician to the board of health; interned at Beverly Hosp in Beverly; served a residency at the Eastern Maine Gen Hospital in Bangor and at the New England Center Hospital Boston; died September 7, aged 34.

Cummins, Harvey Robert, Beverly Hills, Calif.; Emory U versity School of Medicine, 1934; served during World War died in Los Angeles September 18, aged 43, of coron thrombosis.

⊕ Indicates Fellow of the American Medical Association.

eston, Thomas Edwin, New York; University and Bellevue ospital Medical College, New York, 1911; member of the merican Medical Association; affiliated with St. Vincent and Elizabeth's hospitals; died September 21, aged 65, of gasointestinal hemorrhage.

oehring, William Neeb ⊕ Pittsburgh; University of Pittsburgh hool of Medicine, 1914; formerly inspector for the city bureau infectious diseases; died recently, aged 65, of coronary clusion.

ordon, Lourdes Bernard, Oak Park, Ill.; St. Louis University hool of Medicine, 1931; member of the American Medical ssociation; served during World War II; died October 17, aged 5, of hypertensive heart disease.

ough, Albert Sidney, Los Angeles; College of Physicians and urgeons of Los Angeles, 1915; died September 2, aged 67, of eneral *arteriosclerosis.*

ullberg, Earl Arthur, Osceola, Neb.; Creighton University hool of Medicine, Omaha, 1949; member of the American edical Association; served during World War II; affiliated ith St. Francis Hospital; died in St. Joseph Hospital, Omaha, ly 15, aged 29, of aplastic anemia.

arkoff, Kopland Karl, Norwich, Conn.; University of Veront College of Medicine, Burlington, 1919; member of the merican Medical Association; served during World War I; st president of the New London County Medical Association; the staff of the W. W. Backus Hospital, where he died eptember 9, aged 55, of leukemia.

ason, Lester Ray ⊕ Muncie, Ind.; Indiana University School Medicine, Indianapolis, 1925; member of the Industrial edical Association; past president of the Muncie Academy Medicine; died July 2, aged 62, of carcinoma of the gall-ladder.

iitskas, Theodore Victor Joseph ⊕ Trenton, N. J.; Hahneann Medical College and Hospital of Philadelphia, 1930; rved as school physician of Burlington County; affiliated with cKinley Memorial Hospital; died October 2, aged 45.

akaya, Fusataro, Chicago; University of Illinois College of edicine, Chicago, 1916; affiliated with Peoples' Hospital and merican Hospital, where he died October 21, aged 64, of yocardial infarction.

orthrop, Arthur Kimball Sr., ⊕ Detroit; Michigan College of edicine and Surgery, Detroit, 1896; an Associate Fellow of e *American Medical Association; served on the staffs of Provi*nce Hospital and Mount Carmel Mercy Hospital, where he ed July 26, aged 78, of heart failure.

dden, Edgar Floyd, Portland, Tenn.; University of Nashville edical Department, 1899; formerly mayor; died recently, ged 79, of heart attack.

uattlebaum, James Tindal ⊕ Columbia, S. C.; Medical Colge of the State of South Carolina, Charleston, 1927; specialist rtified by the American Board of Internal Medicine; member the House of Delegates of the American Medical Association 1941; served during World War II; for many years on the ff of Veterans *Administration Facility*; affiliated with Baptist spital and Columbia Hospital, where he died September 5, ed 49, of carcinoma of the lung.

ufman, Herman Moses ⊕ Brooklyn; Creighton University hool of Medicine, Omaha, 1938; served during World War affiliated with Coney Island and Kingston Avenue hospitals; d October 10, aged 39.

vay, Apard, New York; Magyar Királyi Pázmány Petrus dományegyetem Orvosi Fakultasa, Budapest, Hungary, 1910; mber of the American Medical Association; died in Ellenle July 10, aged 66, of myocardial infarction.

ynolds, John Henry, Milwaukee; Fordham University School Medicine, New York, 1916, member of the American Medical sociation; affiliated with Milwaukee Children's Hospital; died Wood July 1, aged 62, of coronary thrombosis.

ch, William Tilton ⊕ Neodesha, Kan.; St. Louis University ool of Medicine, 1932; past president of the Wilson County dical Society; served during World War II; died in Wilson unty Hospital September 15, aged 45.

Roberts, James Bray, Kansas, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; died in Paris (Ill.) Hospital recently, aged 76, of acute myocardial infarction.

Rose, Homer Dewitt ⊕ Sonora, Calif.; College of Physicians and Surgeons, Los Angeles, 1914; an Associate Fellow of the American Medical Association; county physician; died September 26, aged 69, of coronary occlusion.

Rowe, Leonard Blake ⊕ Natick, Mass.; University of Vermont College of Medicine, Burlington, 1906; served during World War I; affiliated with Leonard Morse Hospital; for many years member of the board of health; died in Massachusetts General Hospital, Boston, September 19, aged 77, of carcinoma of the bladder.

Schofield, Nathan Norris, Marion, S. C.; Medical College of the State of South Carolina, Charleston, 1909; died in McLeod *Infirmary*, Florence, September 24, aged 67.

Shontz, Donald Delmont, Massillon, Ohio; Ohio State University College of Medicine, Columbus, 1925; past president of the Stark County Medical Society; died August 22, aged 54.

Simpson, Eugene Grant, Naperville, Ill.; Rush Medical College, Chicago, 1892; affiliated with Copley and St. Charles hospitals in Aurora; died recently, aged 85, of heart failure and gastric hemorrhage.

Stevenson, Charles Robert, Ebensburg, Pa.; University of Maryland School of Medicine, Baltimore, 1897; for many years on the staff of Adrian Hospital, Punxsutawney; died September 13, aged 76, of exfoliative dermatitis.

Stewart, Frank, New York; University of Illinois College of Medicine, Chicago, 1922; member of the American Medical Association; retired ship's surgeon with United States Lines; died in St. Vincent's Hospital September 5, aged 58, of cardiovascular disease.

Tastet, David Walker, Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1907; served in France during World War I; formerly associated with the Veterans Administration; died in Garfield Memorial Hospital September 8, aged 71, of coronary arteriosclerosis.

Thomas, Charles Alfred, Coffeyville, Kan.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1904; member of the American Medical Association; served with the Veterans Administration; died in the Veterans Administration Hospital September 11, aged 74, of lymphatic leukemia.

Timmons, Peter Joseph ⊕ Woodhull, Ill.; Loyola University School of Medicine, Chicago, 1931; served during World War II; on the staffs of Cottage and St. Mary's hospitals in Galesburg; died in Jacksonville September 3, aged 47, of coronary occlusion.

Tomlinson, George Milton, Philadelphia; Jefferson Medical College of Philadelphia, 1908; served on the staffs of Jefferson and Philadelphia General hospitals; died in Temple University Hospital October 2, aged 65, of arteriosclerotic heart disease and diabetes mellitus.

Weis, Joseph D. ⊕ New Orleans; Harvard Medical School, Boston, 1898; formerly professor of tropical and clinical medicine at Tulane University of Louisiana School of Medicine; on the staffs of Touro Infirmary and Charity Hospital; died recently, aged 79, of coronary occlusion and hypertension.

Whan, William T., Youngstown, Ohio; Cleveland Medical College, *Homeopathic*, 1897; died July 6, aged 91, of a fractured right hip and arteriosclerotic cardiovascular disease.

DIED WHILE IN MILITARY SERVICE

Lorinstein, Hyman I., Atlantic City, N. J.; Middlesex University School of Medicine, Waltham, Mass.; 1936; served during World War II; for many years chief resident of Shore Memorial Hospital in Somers Point; major, medical corps, U. S. Army Reserve; called to active duty at the start of the Korean hostilities; died in Valley Forge General Hospital, Phoenixville, Pa., September 4, aged 43, of pulmonary and myocardial infarction.

GOVERNMENT SERVICES

AIR FORCE

Symposium on Physics and Medicine of the Upper Atmosphere.—A four-day symposium on "The Physics and Medicine of the Upper Atmosphere" began Nov. 6 in San Antonio, Texas, sponsored by the Air Force School of Aviation Medicine and the Lovelace Foundation for Medical Education and Research of Albuquerque, N. Mex. The conference was attended by some 300 medical men, researchers, and aircraft engineers, who discussed the peculiar conditions met by aviators in the upper atmosphere. Among the speakers were Wernher von Braun, builder of the German V-2 rocket, who now advises the United States on its rocket program, Major Charles Yeager, test pilot who first broke through the sonic barrier with the XS-1 in 1947, and test pilot William B. Bridgeman, who has flown higher and faster than any other human being. Bridgeman recently climbed in a rocket-powered Douglas Skyrocket, an experimental craft, to more than 72,000 feet, after having dropped from the underside of a B-29 Superfort high over Muroc Dry Lake, California. In descending from this height, he made more than 1,200 miles an hour, which is twice the rate that sound travels at that height. Problems of extreme cold, extreme heat, lack of pressure, lack of oxygen, and cosmic radiation, among others, make the upper air more like a region on the moon than like one on the earth, according to a release from the Air Force School of Aviation Medicine, Randolph Field, Texas. To solve these problems for pilots calls for the combined efforts of scientists in the fields of physics, radiobiology, engineering, and medicine. This was the first time in aviation annals that scientists came together to exchange views and report on the work which they are doing in this field.

The papers and discussions at this meeting will be published in book form by the University of New Mexico Press.

DEPARTMENT OF DEFENSE

Drive for More Nurses and Women Specialists.—The Defense Department opened a nation-wide drive to recruit an additional 72,000 women for the armed forces, on Armistice Day, November 11. The Army's drive for more nurses is being conducted on the basis of a regional quota system set up and administered by state affiliates of the American Nurses' Association to ensure that civilian nursing service is not disrupted as more nurses enter the armed forces. Besides making heavy demands on Army nurses, the 95,000 men wounded in the Korean war have required many more women medical specialists—dietitians, physical therapists, and occupational therapists—in Army hospitals in the United States and overseas. In connection with their effort to add another 500 such specialists to the corps, WMSC officials have urged young women high school graduates to plan their college studies with a view to qualifying for a career in the women's medical specialist field.

Announcing the coordinated recruiting program to have 112,000 American women in uniform by June, the Deputy Secretary of Defense stressed that "equal recognition to WAC, WAVE, Women Marine, WAF, Army Nurse Corps, Air Force Nurse, Navy Nurse Corps, and Women Medical Specialist Corps of the Army and Air Force (dietitians, physical therapists and occupational therapists) will be provided to every extent possible."

The June recruiting goals for women in the armed forces include: Army—22,147; Navy—4,689; Marine Corps—750; and Air Force—43,906. The total number sought comprises 9,000 officers, including those required by Army Nurse Corps and Women's Medical Specialist Corps.

Responsibility for attaining the objectives of the program rests with the Defense Advisory Committee on Women in the Services. This group is made up of 49 women leaders in the fields of education, business, journalism, theater, medicine, civic activities, and many other phases of American life.

PUBLIC HEALTH SERVICE

Defense Against Biological Warfare.—A Sectional Rese Program to aid in defense against biological warfare is b planned by the Microbiological Institute of the National I tutes of Health. The program will operate through the expar of microbiological research and the strengthening of rela between research centers and official health agencies.

Twelve investigators in various parts of the United St including six already cooperating in the Influenza Study gram, have been invited to work with other scientists in vicinity in implementing the program. Associated with of these laboratories will be from 5 to 10 nearby part laboratories located in universities, state health departm hospitals, or research institutions, selected to cover broad of interest in microbiology.

Participating laboratories may request support for thei search activities from the National Institutes of Health. directors of the coordinating laboratories will supply inform to Public Health Service Regional Medical Directors, who make this information available to the health officers of states in their regions. The whole program will be coordi in the National Microbiological Institute.

The Communicable Disease Center of the Public H Service has a program to strengthen epidemiologic and la tory services through state health departments and to trai demiologists by the assignment of medical officers direct certain state health departments and Public Health Service stations. These officers will be on call to investigate outb of disease in any state through the regular procedures o Communicable Disease Center and the state health depart *Their investigations may be supported on request* by such ices as the participating laboratories of the Sectional Res Program are willing and able to provide.

More Courses in Radiological Health Training.—Five c in radiological health training will be given at the Environ Health Center, Public Health Service, 1014 Broadway, cinnati. Three of the courses will be in basic radiological training and will be held during the following periods: Ja Feb. 1; March 10-21; and April 21-May 2. An interm course, which is an extension of the training provided by th course, will be given Feb. 4-15 and again May 5-16. The c are offered as part of training in radiological health begun Public Health Service in 1950. There are no tuition or labo fees, but travel and living expenses must be arranged an for by the individual or his employer.

The two-week basic course covers basic theory of ra and radiation-detecting instruments, the use and maint of instruments for measuring radiation, and preventive me for protection against radiation hazards. The intermediate is designed to train students in the operation, maintenanc repair of radiation-detection devices used in monitoring c sonnel, and monitoring of water, food, and other sample

Professionally trained persons who are primarily con with radiological health problems in their respective are eligible to attend the basic course. Candidates should h degree in medicine, engineering, physical science, or biol science, and have had experience in public health work. I line for applications is six weeks before the course opens.

Candidates for either of the courses should apply by pr ing a letter which briefly outlines their education and e ence. This letter should be accompanied by the appropriate ommendation of the candidate's superior. Health depart personnel should be recommended by the health officer, and sonnel of other organizations should be recommended by division head of the sponsoring organization. Applications sh be addressed to Chief, Radiological Health Training Sec Environmental Health Service, 1014 Broadway, Cincinna

FOREIGN LETTERS

RKEY

amycin Therapy.—Prof. Ekrem Şerif Egeli, of Istanbul
ersity, and his assistant, Dr. Karabet Arman, have pub-
d the results obtained with terramycin in 18 patients with
ous respiratory diseases. Eight adult patients with acute lobar
monia were given an initial dose of 2 gm. of terramycin
ochloride, followed by 1.5 gm. every three hours. The tem-
ture became normal in four of these patients after 24 hours
in four patients after 48 hours; recovery was uneventful.
hild 11 years old with primary atypical pneumonia of 15
' duration was given 1 gm. of terramycin on admission and
eafter 0.5 gm. every five hours. After 24 hours the tempera-
was normal. There was no relapse, and complete recovery
obtained after nine days. In two patients, 26 and 30 years
with bronchopneumonia, the temperature was normal after
ours. The patients recovered and were discharged after five
. A 48-year-old patient, who had a lung abscess of 12 days'
tion, with gram-positive and gram-negative aerobic and
robic bacilli and cocci in the sputum, had been given
000 units of penicillin and 6 gm. of sulfonilamide without
t. After 17 days of terramycin therapy at the hospital clinic
patient's temperature became normal and expectoration
ed. X-ray examination indicated the disappearance of the
ty, and complete recovery was obtained. A man, 52, who had
ellosis, with an agglutination titer of 1/600 and a tempera-
of 102.2 F for 30 days, recovered at the hospital after nine
. He was given 87 gm. of terramycin. A 19-year-old youth
pannyelophthisis, high temperature, and hemorrhagic diathe-
The leukocytes numbered 18,000, erythrocytes, 2,920,000,
mbocytes, 19,000. The bone marrow showed reticular cells
%, white series count 52.5, red series count 32.8, and plasma
1.0. Blood cultures were negative. On the fourth and fifth
of hospitalization the patient received 2,000,000 units of
cillin without effect. Then he was given 4 gm. of terramycin
y for 20 days. The temperature became normal, the blood
rned to normal, and the patient recovered. One patient,
usly ill with typhoid, was given terramycin on the 14th
Vomiting and diarrhea developed, and terramycin therapy
discontinued. Eight days later the patient died. Another
ent with typhoid was given a daily dose of 2 gm. terramycin,
ing on the 15th day. Recovery began on the ninth day,
it cannot be definitely attributed to terramycin therapy. Two
dren, 6 and 8, who had whooping cough, were given terra-
in. In one case the therapy was begun on the 12th day, in
other on the 18th day. Both patients received a daily dose
.5 gm. After 24 hours whooping decreased one-third. One
d recovered after five days, the other after seven days. Ter-
ycin was administered by mouth only. The average daily
given the children was 2 gm.; the average daily dose for
lts was 5 gm. One patient showed intolerance to the drug.

ptomycin Therapy in Pulmonary Tuberculosis.—Dr. Tevfik
ail Gökce, director of the Istanbul-Heybeliada Tuberculosis
atorium, and his associate, Dr. Ihsan Dincer, reported on
lts of streptomycin therapy during 1950. Of the 161 patients,
were women and 65 were men. The daily dose of strepto-
in was 0.5 to 1 gm. In collapse therapy and other interven-
s this dose proved satisfactory, and good results were also
ined when complications followed such interventions.
ugh patients with extensive exudative tuberculosis showed
moderate improvement, there was improvement in the gen-
condition. Most patients with no lowering of temperature
evidence of streptomycin resistance, but in most patients
temperature was lowered and there was general symptomatic
rovement and steady gain of weight. In patients with empyema, parenteral or intrapleural streptomycin therapy had little effect. Good results were obtained with streptomycin as a prophylactic agent in 23 of 25 patients prior to unilateral and bilateral pneumothorax, in 1 patient prior to pneumonolysis, in 1 prior to cavernostomy, in 3 before thoracoplasty, and in 2 patients with pneumoperitoneum. It gave good results also in 8 of 10 patients with elevated temperature resulting from an exudate following pneumothorax, in 6 of 8 patients with long-standing hydrothorax and periodic elevation of temperature, in 4 of 9 patients with pyopneumothorax and exudate as a result of perforation. Marked improvement was noted in 9 of 11 patients with elevation of temperature and exudate following pneumonolysis, in 5 of 6 patients with continuous fever following extrapleural pneumothorax, in 8 of 10 patients with temperature elevation and general deterioration after thoracoplasty, and in 1 patient with cavernostomy. In one patient with recent infiltration and recent cavity, the infiltration regressed but the cavity remained. There was improvement in 12 of 28 patients with pulmonary tuberculosis and extensive exudative lesions and in 15 patients with pulmonary tuberculosis and elevation of temperature during the course of routine sanatorium treatment. Of three patients with pulmonary tuberculosis and hemorrhage, one showed marked improvement, and the others showed no effect. Eight of 10 patients with pulmonary tuberculosis complicated by tuberculosis of the larynx showed pronounced improvement and regained their voice, and 2 were partly improved. In one patient with pulmonary tuberculosis complicated by peritonitis the temperature became normal and the peritoneal fluid regressed after a daily dose of 0.25 gm. of streptomycin. In one patient with pulmonary tuberculosis complicated by pericarditis, general symptomatic improvement was noted; the pericardial fluid regressed and became normal. This patient received two injections of 0.50 gm. of streptomycin into the pericardium. In one patient with pulmonary tuberculosis complicated by tuberculosis of the intestines, streptomycin proved ineffective. In one patient with tuberculosis of the vertebrae the abscess regressed, and in one patient with osteitis the fistula closed. Of three patients with pulmonary tuberculosis complicated by meningitis there was temporary marked improvement in one patient followed after three months by relapse and death; the other two patients did not benefit from streptomycin therapy. In one patient, whose temperature regressed as a result of streptomycin therapy, streptomycin resistance later developed and paraaminosalicylic acid was given with good results.

Of the 161 patients with pulmonary tuberculosis and other organic complications, 114 patients derived great benefit from streptomycin therapy. The Heybeliada Sanatorium, situated on an island in the Marmara Sea, has 530 beds and is under the direction of the Ministry of Health and Social Assistance. Four-fifths of the beds are free, and there is a long waiting list.

Dr. Ziya Gun Foundation.—The late Dr. Ziya Gun, for 35 years professor of ophthalmology at Istanbul University, willed 75% of his property to the university. It was decided to establish a trachoma research institute to function in cooperation with the ministry of health and social assistance, which for more than 20 years has been engaged in trachoma control and prevention. The income from real estate properties, investments, and £200,000 in bank deposits is to be spent on trachoma research, aid to eye clinics, undergraduate and postgraduate study in ophthalmology abroad, and a money reward every year to the writer of the best thesis in ophthalmology.

Three-Year-Old Lithopedion.—In this unusual case, a laparotomy for extrauterine pregnancy was performed recently at the Adana maternity hospital on a farm woman with two living children. Three years ago, the patient had a pain in the abdomen, vomited, and fainted. The symptoms subsided, but from time to

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items in these letters are contributed by regular correspondents in
various foreign countries.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Hospitals for Profit: Liability for Inaction of Special Nurse.—The plaintiff filed a suit for damages alleged to have resulted from the failure of the defendant hospital to install sideboards on a hospital bed after an order had been given therefor by a hospital doctor. The plaintiff applied for an order to set aside a verdict in favor of the hospital which application was heard by the supreme court, trial term, New York County, New York.

It appeared that the members of the family of the deceased person specifically requested the hospital, through its agents, to install bed sideboards and that both the hospital servants and a special nurse failed to make the installation. The question presented by this application, said the court, was whether or not a hospital is liable for an injury sustained and attributable to its failure to install bed sideboards after an order has been given therefor by a hospital doctor. The installation of bed sideboards is an administrative act of a hospital and the hospital would be without liability only if the failure of performance by a special nurse absolved the hospital absolutely and without further inquiry into any other factor or circumstance. The defendant failed to furnish any authority sustaining the contention that it was the exclusive function of the special nurse to make the installation. Failure of performance and negligent performance must be distinguished. An act tortiously done by a special nurse producing injury would absolve the hospital. Such immunity would arise whether medical care or administrative function is involved. Can it be said in the present state of the law that a failure of performance on the part of a special nurse, in this particular instance, in the administrative area, absolves the hospital if it too failed to act? While, as defendant argues, the tortious act of a special nurse does not create liability on the part of the hospital, it does not follow that her inaction administratively absolves the hospital. The administrative function to supply a proper bed for the patient's occupancy in pursuance of the doctor's orders is, in the first instance, and remains the nondelegable duty of the hospital whose facilities are engaged.

Accordingly, the plaintiff's application to set aside the jury verdict was granted and the case was returned to the trial calendar.—*Pivar v. Manhattan General, Inc., 104 N.Y.S. (2d) 575 (New York, 1951).*

Income Taxes: Kickbacks, as "Ordinary and Necessary" Business Expense.—The Commissioner of Internal Revenue refused to allow the petitioners to deduct the payment of kickbacks to physicians as "ordinary and necessary" business expenses under the income tax law. The action of the Commissioner was upheld by the tax court so the petitioners appealed to the United States court of appeals, fourth circuit.

The petitioners were engaged in the business of grinding, fitting and selling eye glasses and spectacles. They entered into oral contracts with various oculists whereby petitioners agreed to pay the oculists one-third of the retail price of all eye glasses and spectacles purchased by patients sent to them by the oculists. The evidence shows that the oculists did not regularly inform their patients of this rebate arrangement but such a disclosure was made only when it was specificially requested by individual patients. The sole issue in this case, said the court, is whether these rebates paid by taxpayers to the doctors were deductible as "ordinary and necessary" business expenses.

We feel, said the court of appeals, that the answer to this must be in the negative. No deduction should be allowed as "ordinary and necessary" which violates sharply defined public policy. A doctor owes the duty of undivided loyalty to his patient, and a contract which violates this duty is unenforceable and opposed to public policy. One cannot at the same time serve two incompatible masters. The evil we find in these kickbacks, the court continued, is the receipt by the physician of secret profits through dealings with his patients. Surely, the doctor is assuming an utterly inconsistent position when he recommends *an optician without disclosing* that he is being paid for recommendation. This corrupt practice obviously involves, tends to promote, serious evils: (1) the *prescription* of gla when not actually necessary; (2) more *expensive* lenses t really needed; (3) recommendation of *an inferior* optician; artificial increase in the cost of glasses by the inclusion of physician's commission, for which the physician affords no v *to the patient. The bait* of the secret consideration, which payers offered to the doctor, hopelessly divides the trust int of the doctor. At least two states have thought this practic insidious as to pass legislation forbidding it. We hold, concl the court, since these kickbacks corrupt the fiduciary relation between physician and patient and result in a violation of duty of loyalty, they are opposed to public *policy* and, t fore, are not deductible as "ordinary and necessary" bus expenses by these taxpayers.

That these *deductions* are opposed to public policy, the c continued, is further borne out by the standards set by the m cal profession itself. We find among the "Principles of Me Ethics" of the American Medical Association (1943 E the following: "It is unprofessional to accept rebates on scriptions or appliances or perquisites from attendants wh in the care of patients." "When a patient is referred by one p cian to another for consultation or treatment, whether the p cian in charge accompanies the patient or not, it is unethic give or to receive a commission by whatever term it ma called or under any guise or pretext whatsoever." The record opinion of the tax court also show that these kickbacks been condemned by the Medical Society of North Caroli the State in which these taxpayers were chiefly engaged in ness. Accordingly the decision of the tax court against the tioner was affirmed.—*Lilly et al, v. Commissioner of In Revenue, 188 F (2d) 269 (1951).*

MEDICAL MOTION PICTURE

NEW FILM ADDED TO A. M. A. LIBRARY

Introduction to Aphasia: 16 mm., color, sound, showing t minutes. Prepared by the Department of Medicine and Surgery, V Administration, J. M. Nielsen, M.D., Technical Advisor. Prod *1950* by Churchill-Wexler *Film* Productions, Los Angeles. Procur loan (service charge $3) from Committee on Medical Motion *American Medical Association, 535 North Dearborn St., Chicago*

This film is admirably designed to explain a complex in terms understandable by those who are beginning to aphasia. It presents an over-all definition of aphasia and ments this definition by animated diagrams of the neuroa involved and a demonstration of an actual case. It expla the various forms of aphasia, again using the diagrams o cal neuroanatomy and illustrating actual cases typical c type. *Ingenuity and remarkable skill* are exhibited *in* t torial presentation of a very abstract and *difficult* subje function of speech and its understanding, as well as its o manifestations, are grouped together to make a complet of ideas. Most persons believe that a person with aphasia cannot express himself, but few understand the compone of this lack of expression.

In the film, these parts are isolated from one anoth demonstrated as parts, each of which produces a certa of inability to use words, either in producing or in unde ing them. It is true that lesions of these component p themselves are extremely rare; nevertheless, it is import all those who wish to understand the neurologic defects t what the component parts may be. The conception of a presented in the film is, of course, that of the author accepted by many neurologists, although there might be differences of opinion in detail.

The film is highly recommended for psychologists, n gists, general practitioners, medical students, and speech pists. It will also be of interest to otologists, physical ther occupational therapists, and nurses. This is an outstandi ample of a good medical film production. It is well org into logical sequences, and the photography, animatio narration are excellent.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

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'rimary Involvement of Upper Extremities in Thromboangiitis Obliterans. E. M. Farber and M. H. McLain.—p. 352.
'ixed Drug Eruption from Aureomycin: Report of Two Cases. A. L. Welsh and L. C. Goldberg.—p. 356.

ıvolvement of the Upper Extremities in Thromboangiitis bliterans.—In typical cases of thromboangiitis obliterans, 40% the patients have arterial disease of the upper extremities in sociation with occlusive arterial disease of the lower extremi-s. It is unusual for the disease to develop in the hands clini-lly before there are symptoms referable to the legs. Farber id McLain recently observed two patients in whom thrombo-ıgiitis obliterans (Buerger's disease) was limited to the upper tremity. In both patients painful ischemic ulcers of the finger ps developed. The lesions became infected and were treated as yoderma until the vascular disease was recognized. A bilateral pper thoracic sympathectomy was done in one. This was fol-ıwed by progressive improvement and healing of the digital lcer. The authors stress that early recognition of this disease a cause of ulceration of the fingers is important, because ırly treatment may prevent the loss of a finger or a limb.

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Postmenopausal Bleeding and Its Management: Ten-Year Hospital Survey. B. D. Jones Jr. and E. B. Cantor.—p. 365.
Anatomy of Urethra and Anterior Vaginal Wall. K. E. Krantz.—p. 374.
*Essential Hypertension with Superimposed Pre-Eclampsia. W. S. Jones.—p. 387.
Sarcoma of Uterus: Review of 16 Cases, 1939 to 1948. P. M. Murray and G. Weitzner.—p. 396.
Diagnostic Confusion of Ovarian Metastases from Endometrial Carcinoma with Primary Ovarian Carcinoma. W. F. Finn.—p. 403.

Toxemia During Labor.—This investigation on 500 cases was prompted by the observation that placentas occasionally had a raised, dark area on the maternal surface, typical of the early infarction of acute toxemia, although the patient had been free of toxemia and proteinuria up to admission early in labor. The authors conclude that toxemia is initiated with greater frequency during labor than at any other time during pregnancy. Proteinuria, absent early in labor in 275 consecutive cases, was found to be 1+ at delivery in 41.8% and 2+ to 4+ in 10.7%. Early localized infarction and beginning necrosis were found in 24 placentas. Proteinuria, from 1+ to 4+, developed during labor in 19 of the 24 cases. In five cases, necrosis was recognizable, but had occurred too early to have caused proteinuria. Ten patients showed no proteinuria on admission but showed 2+ to 4+ at delivery. The placentas of all 10 showed early infarction. The characteristic changes in early infarction are enlargement and crowding of the villi, reduction in intervillous spaces and circulation, distention and engorgement of the villous capillaries, and pyknosis and karyorrhexis of the chorionic epithelium. Proteinuria is always present if pyknosis and karyorrhexis are marked, but may be absent if they are slight. Placental infarction apparently has its inception in spasm of the sphincters of the placental veins, obstructing the outflow of fetal blood from the corresponding placental unit. Exposure of uterine muscles of guinea pigs to maternal and fetal blood serum indicated the presence of a spasmogenic or muscle-stimulating factor, presumably capable of inducing contractions of the sphincters in the placental veins. The frequency with which proteinuria and acute placental infarction develop during labor suggests that the initiator of uterine contractions and labor (presumably oxytocin) is also the initiator of spasm of the sphincters of the placental veins, setting up the sequence of events in the placenta that results in toxemia. Since withdrawal of estrogen and progestin has been shown to precede labor as well as toxemia and since estrogen is said to have a depressing or inhibitory effect on the pituitary, release from this effect may possibly account for both the initiation of labor and the greater frequency of toxemia during labor. Toxemia initiated during labor is usually of too short duration to cause clinical symptoms, but, if the toxemia was unrecognized before labor, it may cause late post-partum eclampsia.

ıe Association library lends periodicals to members of the Association ıd to individual subscribers in Continental United States and Canada r a period of five days. Three journals may be borrowed at a time. riodicals are available from 1940 to date. Requests for issues of rlier date cannot be filled. Requests should be accompanied with ımps to cover postage (6 cents if one and 18 cents if three periodicals e requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. eprints as a rule are the property of authors and can be obtained for rmanent possession only from them.

n asterisk (*) before a title indicates that the article is abstracted.

Essential Hypertension with Superimposed Preeclampsia.—Of 244 hypertensive women who were observed at the Providence Lying-In Hospital over the 10 year period 1939-1948, when a total of 51,840 women were delivered, 203 had mild hypertension. There were 73 cases of superimposed preeclampsia in this group of 203, an incidence of 36%. The author discusses such factors as time of onset of preeclampsia, weight gain, separation of placenta, fetal loss, and maternal death. He considers it appropriate to recognize superimposed preeclampsia as an entity in the official classification of toxemia. Although he used the term benign or mild, with regard to hypertension, he feels that the term essential is more appropriate, because the condition is always serious in pregnancy. It is difficult to accept as "benign" any basic physiological complication of pregnancy that entails 14 times the normal expectancy of preeclampsia, 10 times the incidence to toxic separation of the placenta, 20 times the chance of cerebral hemorrhage or convulsive phenomena, one-third the hope of a live birth, and 35 times the normal risk of maternal death.

Annals of Internal Medicine, Lancaster, Pa.

35:307-498 (Aug.) 1951

Patient and Physician. J. Parkinson.—p. 307.
Allergy in Aged. R. A. Kern.—p. 315.
Nocturnal Disorders of Medical Interest. S. Vaisrub.—p. 323.
*Chloroquine in Hepatic Amebiasis. W. A. Sodeman, A. A. Doerner, E. M. Gordon and C. M. Gillikin.—p. 331.
*Elevated Serum Pancreatic Enzyme Values Without Primary Intrinsic Pancreatic Disease. E. C. Raffensperger.—p. 342.
Clinical Evaluation of Aurothioglycolanilide (Lauron-Endo) in Rheumatoid Arthritis. R. R. Merliss, B. Axelrod, J. Fineberg and M. Melnik. —p. 352.
What is Chronic Brucellosis? W. W. Spink.—p. 358.
Importance of Cervical Spine to Internist. A. I. Josey.—p. 375.
Prolonged Regulation of Alloxan Diabetes in Dogs. L. Bauman, J. L. R. Candela and T. Martino.—p. 391.
Nutritional Factors in Cardiac Disease. T. M. Durant.—p. 397.
Stellate Ganglion Block in Cerebrovascular Accidents. W. A. Nosik. —p. 409.
Recent Advances in Pulmonary Resection in Treatment of Tuberculosis. J. H. Forsee, C. W. Tempel and J. M. Salyer.—p. 417.
Military Psychiatry Today. F. J. Braceland.—p. 432.

Chloroquine in Hepatic Amebiasis.—Seven patients with hepatic amebiasis, two of them with an acute amebic liver abscess and two with a chronic amebic liver abscess, were treated with chloroquine diphosphate. Five patients received a primary dose f 1 gm. of the drug for two days, followed by 0.5 gm. daily or two or three weeks, the dose schedule recommended by Conan. The two patients with acute amebic hepatitis were given double this dosage. Results confirmed the effectiveness of chloroquine in hepatic amebiasis. Prompt recovery occurred in four patients. In three patients primary failure of the drug with subsequent success showed the importance of multiple factors in successful therapy and indicated that diagnosis by therapeutic trial with chloroquine may not be feasible, for failure to respond to chloroquine does not rule out amebic hepatic disease. As with emetine, negative therapeutic tests with chloroquine must be interpreted with caution. The dose schedule recommended by Conan seems generally satisfactory. If there is no response, the dose may be increased, as in two of the author's patients, before the drug is considered a failure, and even then, if there is no response, the drug may be observed to act later when other therapeutic procedures, such as drainage, are added. These procedures are at times determinants of the effectiveness of chloroquine, just as they are with emetine. No evidence of serious chloroquine toxicity was observed in the seven patients.

Elevated Serum Pancreatic Enzyme Values.—Appreciable elevations of serum pancreatic enzyme activity were observed in 21 patients without intrinsic pancreatic disease. Only one patient had a serum amylase determination of over 400 mg. per cent, and this was on the 12th day of peritonitis following a ruptured appendix. Of the 21 patients, 6 had elevation of serum amylase activity above 300 mg. per cent. The majority of elevated serum amylase determinations were between 200 and 300 mg. per cent. The highest serum lipase value recorded in the author's cases was 6.2 cc. This was obtained in a patient with pyloroduodenal ulcer with a subacute perforation into the liver. Six patients h
elevated serum lipase values above 4 cc., while the majority
the elevations were between 1.5 cc. and 4 cc. Of the five patien
with perforated peptic ulcers two had elevated serum amyla
and lipase levels within the first 24 hours following the perfor
tion, while in the others elevated serum pancreatic enzym
were determined only after 8 to 10 days. These cases prov
that an elevation of serum pancreatic enzymes may occur
association with an acute perforated peptic ulcer, regardless
the site of the perforation. In the four cases of partial sm
bowel obstruction with elevated serum pancreatic enzymes,
height of the determination was first seen six to eight days f
lowing obstruction. The occurrence of such elevations in as
ciation with partial small bowel obstruction is of diagno
importance in distinguishing between actual mechanical obstr
tion and the ileus that may be associated with acute pancreat
Elevated serum pancreatic enzyme values were observed
several patients with acute peritonitis of almost any etiolo
These elevations were first seen from 5 to 10 days following
insult and were equally reflected in both serum pancre
enzyme values. The values remained elevated for a longer tim
this group than in any of the others. These elevations indica
that some cases of acute peritonitis may be associated with a
gree of pancreatic insult and that this insult is reflected in the
vated serum pancreatic enzyme values for comparatively l
periods even after the patient has become totally asymptoma
The last 3 of the 21 patients had elevations of the serum enzym
in association with renal impairment. In none of the 21 pati
was it possible to correlate the severity or the prognosis of
disease with the time, degree, or duration of elevation of
serum pancreatic enzyme values.

Archives of Pediatrics, New York

68:303-356 (July) 1951. **Partial Index**

*Acute Iron Poisoning: Report of Case and Review of Literature.
Murphy, C. Neustein, A. C. Hoffman and others.—p. 303.
Iodine in Treatment of Poliomyelitis and Other Paralytic Diseases.
Scobey.—p. 309.

Acute Iron Poisoning.—A 30-month-old child played wit
envelope containing 0.2 gm. ferrous sulfate tablets and had
ably ingested about 75 of them (15 gm.). This was equiv
to 1.28 gm. per kilogram of body weight. Four hours late
child began to vomit blood-tinged material. The vomitin
curred four or five times and was associated with the pa
of two to three diarrheal stools. The stomach was lavaged
1,500 cc. of isotonic sodium chloride solution. The initi
turns were grossly bloody, but subsequent returns were
The child remained alert and playful throughout 11 da
hospitalization and showed no evidence of hepatic or ren
jury. The authors review the literature on acute iron poiso
They stress that this child survived a nearly fatal dose. I
cussing therapeutic methods, they cite Thomson's recom
dations, as follows: 1. Emesis may be successful in riddin
body of swallowed tablets up to one hour after ingestio
Gastric lavage should be performed with an aqueous bicarb
solution to convert the corrosive ferrous sulfate to the muc
irritant ferrous carbonate and to dilute the poisonous subst
3. Bismuth preparations should be administered orally in
to protect the gastric mucosa. Dimercaprol (BAL) seems
contraindicated, since it may aggravate the effects of pois
with iron.

Connecticut State Medical Journal, Hartford

15:789-884 (Sept.) 1951

Psychiatry in Everyday Living: Teaching and Practice of Mental H
F. S. DuBois.—p. 799.
Intestinal Hemorrhage from Ulcer in Meckel's Diverticulum. J. J. M
and J. Shoukimas.—p. 807.
Treatment of Peripheral Arterial Insufficiency. R. I. Lowenberg.—
Neurinoma of Ethmoid. R. Dinolt.—p. 815.
Coordination Between Health and School Districts in Commun
Disease Control. A. Gelperin and J. I. Linde.—p. 819.
Social Care and Rehabilitation of the Mentally Defective Child.
Dayton.—p. 823.

Georgia Medical Association Journal, Atlanta

40:323-366 (Aug.) 1951

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Problem of Psychic Versus Somatic Disease. H. H. Tift and W. D. Hazlehurst.—p. 334.
Program for Intern Training for General Practice. G. L. Kelly.—p. 337.

Iowa State Medical Society Journal, Des Moines

41:341-380 (Aug.) 1951

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Electrocardiographic Changes in Acute Poliomyelitis. J. E. Gustafson and H. Margulies.—p. 349.
Respiratory Difficulties in Newborn as Related to Otolaryngology. R. C. Carpenter.—p. 353.

Journal Clin. Endocrinology, Springfield, Ill.

11:805-896 (Aug.) 1951

Clinical Bio-Assay for Chorionic Gonadotropin. A. Albert and J. Berkson. —p. 805.
Effect of Intravenous Estrogen in Uterine Bleeding. R. B. Greenblatt and W. E. Barfield.—p. 821.
Effect of Intravenous Testosterone on Nitrogen and Electrolyte Metabolism. C. D. West, F. H. Tyler and H. Brown.—p. 833.
Distribution of I^{131} in Tissue Obtained at Necropsy or a Surgical Operation in Man. G. S. Kurland and A. S. Freedberg.—p. 843.
Hormone Studies in Case of Adrenogenitalism Due to Neoplasm of Adrenal Cortex. C. W. Lloyd, J. Lobotsky, J. Jones and others.—p. 857.
Effect of ACTH in Case of Cerebromacular Degeneration (Tay-Sachs Disease): Endocrinologic Study. L. Gitman, S. Brusilow and I. J. Greenblatt.—p. 866.
Acute and Chronic Adrenal Insufficiency in Patient Showing Polyglandular Deficiency and Acromegaly. P. M. Rummell, L. S. Baer, L. Hollister and F. Kolb.—p. 872.
Leydig (Sympathicotropic) Cell Tumor of Ovary: Report of Case with Virilism, Including Postmortem Findings. B. A. Sachs and D. Spiro. —p. 878.

Journal of Clinical Investigation, Cincinnati

30:793-896 (Aug.) 1951

Effects of Twenty Degree Head-Up Tilt upon Cerebral Circulation of Patients with Arterial Hypertension Before and After Sympathectomy. J. H. Hafkenschiel, C. W. Crumpton, H. A. Shenkin and others. —p. 793.
Studies of Serum Creatine Tolerance: I. Findings in Normal Males and in Hyperthyroidism. J. H. Peters, R. Schwartz, H. Mermelstein and others.—p. 799.
Occurrence of Diuresis in Humans in Stressful Situations and Its Possible Relation to Diuresis of Early Starvation. L. E. Hinkle Jr., C. J. Edwards and S. Wolf.—p. 809.
*Studies in Diabetes Mellitus: II. Occurrence of Diuresis in Diabetic Persons to Stressful Life Situations, with Experimental Observations on Its Relation to Concentration of Glucose in Blood and Urine. L. E. Hinkle Jr., C. J. Edwards and S. Wolf.—p. 818.
Use of Artificial Respiration in Pulmonary Emphysema Accompanied by High Carbon Dioxide Levels. H. J. Boutourline-Young and J. L. Whittenberger.—p. 838.
Pulmonary Function Studies in Sarcoidosis. E. Osborne Coates and J. H. Comroe Jr.—p. 848.
Amount and Nature of Urinary Proteins in Normal Human Subjects. D. A. Rigas and C. G. Heller.—p. 853.
"Water Diuresis" Produced During Recumbency by Intravenous Infusion of Isotonic Saline Solution. M. B. Strauss, R. K. Davis, J. D. Rosenbaum and E. C. Rossmeisl.—p. 862.
Concentration of Serum Protein-Bound Iodine in Normal Men. R. G. Tucker and A. Keys.—p. 869.
Precipitable Iodine of Serum (SPI) in Disorders of Liver. D. M. Kydd and E. B. Man.—p. 874.
Pool Size, Turnover Rate, and Rapidity of Equilibration of Injected Isotopic Uric Acid in Normal and Pathological Subjects. C. Bishop, W. Garner and J. H. Talbott.—p. 879.
Effect of Benemid (P-[Di-N-Propylsulfamyl]-Benzoic Acid) on Uric Acid Metabolism in One Normal and One Gouty Subject. C. Bishop, R. Rand and J. H. Talbott.—p. 889.

Diuresis in Diabetics Exposed to Stress.—According to Hinkle and associates, there is increasing evidence suggesting that not all of the polyuria that occurs in diabetics can be attributed to an increase in the amount of glucose excreted. In observations on persons with diabetes mellitus of all grades of severity they repeatedly observed an increase in water and glucose excretion, sometimes associated with ketosis and coma, occurring in association with stressful life situations, and not attributable to infection, trauma, or changes in diet, insulin, or activity. A study on "stress diuresis" revealed the following facts: 1. In persons with diabetes mellitus, exposure to stressful life situations may lead to diuresis, which is characterized by a 200-500% increase in the rate of water excretion, accompanied by a rise in the excretion of chlorides and ketone bodies. 2. The stress diuresis occurring in aglycosuric diabetics is similar to that observed in the nondiabetic persons discussed in a previous paper. 3. When stress diuresis occurs in diabetics who are glycosuric, the rate of glucose excretion rises in parallel with the rate of water excretion, and there is no major change in the glucose concentration of the urine. 4. Stress diuresis is not dependent on osmotic changes associated with the excretion of glucose in the urine, or on changes in the concentration of glucose in the blood. 5. A stress diuresis may lead to a rapid loss of large amounts of water, glucose, and chlorides and may be an important factor in the development of acidosis and coma. 6. The ingestion of concentrated glucose solutions is well tolerated by diabetics in the absence of stress, but in stress situations such solutions may increase the loss of water and chlorides.

Journal Lab. and Clinical Medicine, St. Louis

38:167-330 (Aug.) 1951

Note on Tryptophane and Pellagrous Glossitis. W. B. Bean, M. Franklin and K. Daum.—p. 167.
Anemia in Acute Experimental Beryllium Poisoning. H. E. Stokinger and C. A. Stroud.—p. 173.
Effect of Intravenous Folic Acid on Cholinesterase Activity of Blood and Folic Acid Blood Levels. H. H. Scudamore, G. J. Gabuzda and L. J. Vorhaus II.—p. 183.
Effect of Trypsin on Duffy Factor. L. J. Unger and L. Katz.—p. 188.
Renal Excretion of Thiocyanate. M. Nickerson and J. J. Thomas.—p. 194.
Studies of Cation Exchange Resins: Their Optimal Potassium Content for Clinical Use. E. W. McChesney.—p. 199.
Prolonged Retention of Bromsulfalein in Patients with Regurgitation Jaundice. B. Giges—p. 210.
Experimental Production of Syndrome Resembling Toxemia of Pregnancy. G. M. C. Masson, A. C. Corcoran and I. H. Page.—p. 213.
Effect of Benemid (P-[Di-N-Propylsulfamyl]-Benzoic Acid) on Blood Levels of PAS. H. Janszen.—p. 227.
*Serum Concentrations of Chloramphenicol Following Intravenous and Intramuscular Administration. J. M. Burnell and W. M. M. Kirby. —p. 234.
Action of Synthetic Atropine Substitute in Normal Individuals. A. Wollum and H. M. Pollard.—p. 238.
Biochemical Studies on Leucocytes: II. Phosphatase Activity in Chronic Lymphatic Leucemia, Acute Leucemia, and Miscellaneous Hematologic Conditions. W. S. Beck and W. N. Valentine.—p. 245.
Observations on Characteristics of Unusual Circulating Anticoagulant. J. F. Mueller, O. Ratnoff and R. W. Heinle.—p. 254.
Cutaneous Absorption of Phenol. M. V. Freeman, J. H. Draize and E. Alvarez.—p. 262.

Serum Concentrations of Chloramphenicol.—Chloramphenicol levels of the serum were determined in 50 patients after the intravenous administration of a new parenteral preparation of chloramphenicol. After a single injection of 1 gm., serum concentrations averaged 20 γ per cubic centimeter at 1 hour, and gradually declined to an average of 2.4 γ per cubic centimeter at 24 hours. After 0.5 gm. was given intravenously, the serum concentrations fell from an average of 10 γ per cubic centimeter at 1 hour to 3.8 γ per cubic centimeter at 12 hours. When levels were compared after oral and intravenous administration, the serum concentrations were slightly higher with the intravenous route at 3 hours, but were twice as high at 12 hours, and persisted for a longer period than with the oral route. From the data obtained, it appears that when chloramphenicol is indicated, and oral administration is not feasible, 1 gm. given every 12 hours intravenously will provide effective therapy. The parenteral preparation was also well tolerated by the intramuscular route but did not give serum levels adequate for the therapy of most infections.

Kansas Medical Society Journal, Topeka

52:361-420 (Aug.) 1951

*Bone Marrow Biopsy as Aid in Diagnosis of Metastatic Malignancy. W. R. Durkee and S. J. Wilson.—p. 361.
Clinical Report on Relief of Headaches Non-Responsive to Analgesics. C. K. Shofstall and W. H. Shofstall.—p. 366.
Office Gynecology. J. H. Moore.—p. 368.
*Temporal Arteritis: Report of Case with ACTH Therapy. W. M. Tate and J. A. Wheeler.—p. 374.

Bone Marrow Biopsy in Metastatic Malignancies.—The possibility of recognizing tumor cells in bone marrow aspirated from the sternum was first studied in 1936 by Rohr and Hegglin, who found tumor cells in 11 of 75 patients with neoplastic disease. Subsequently, some other investigators studied this problem, but there have been few reports in the recent literature. This report is concerned with 11 instances of metastatic malignancy found on sternal bone marrow examinations at the hospital of the School of Medicine of the University of Kansas. Five of these aspirations were done because of unexplained anemia, and two were done because of destructive bone lesions. Four had both an anemia and bone destruction, but the marrow examinations were done primarily for diagnosis of the type of anemia. The malignant lesions diagnosed were as follows: carcinoma of the stomach in three cases, proved carcinoma of the breast in two, probable breast cancer in one, probable carcinoma of prostate or of lung in one each, and melanosarcoma in one. In two others the cancers could not be definitely located. The authors feel that bone marrow biopsy should be done whenever an unexplained anemia occurs in a patient of an age in which malignancy is likely to occur. A marrow biopsy should also be done in all instances in which there are destructive bone lesions and the diagnosis is in doubt. The destructive lesions in the bone in metastatic malignancy, as demonstrated by x-ray, often cannot be differentiated from those of multiple myeloma, and the marrow aspiration biopsy is one of several diagnostic aids. Although the bone marrow findings did not alter the prognosis in any of these cases, they did serve to make the clinical management of the cases more intelligent.

Corticotropin in Temporal Arteritis.—Formerly it was thought that temporal arteritis was a pathological process involving only the temporal vessels; however, most writers now feel that it is much more extensive, since at autopsy the process has been found to involve the retinal, subclavian, renal, carotid, coronary, femoral, occipital, brachial, and cerebral arteries. Tate and Wheeler feel that the term temporal arteritis is a misnomer but will suffice until a better one can be offered. The cause of temporal arteritis is not definitely known. Various treatments have been used, and procaine block of the nerves of the temporal vessels and severing of the vessels have proved most successful. The authors present the detailed history of a patient, who, after inadequate response to several other treatments, was treated with corticotropin (ACTH) in doses of 10 mg. every six hours. The relief was dramatic, but symptoms recurred when the dosage was reduced and subsided again when the original dosage was resumed. Later, however, the dosage could be reduced and for a few days completely interrupted. The total dose of corticotropin was 2,100 mg. The authors say that while cortisone has been used before in temporal arteritis, the case reported here seems to be the first in which corticotropin has been used.

New England Journal of Medicine, Boston

245:197-234 (Aug. 9) 1951

*Upper-Respiratory Infection as Factor Influencing Susceptibility to Poliomyelitis. T. H. Ingalls and W. L. Aycock.—p. 197.
Gastroscopic Biopsy in Differential Diagnosis of Gastritis and Carcinoma. E. B. Benedict.—p. 203.
Full-Term Abdominal Pregnancy: Case Report. D. B. Dorman.—p. 207.
Decline in Mortality in Acute Rheumatic Fever in New Haven, Connecticut, 1920-1948. R. W. Quinn and J. P. Quinn.—p. 211.
Plastic Surgery: Harelip and Cleft Palate, with Section on Speech Therapy. B. Cannon, D. Fisher and H. C. Britton.—p. 215.

Upper Respiratory Infection and Susceptibility to Poliomyelitis.—This report concerns a sudden outbreak of poliomyelitis that occurred at St. Mark's School in Southboro, Mass., in May 1936. Among 190 boys, poliomyelitis developed in 22 within two weeks. This outbreak is important in several respects: it occurred in the off-season of an off-year; it was sharply localized and was explosive onset with a high attack rate; and it followed a hig incidence of spring respiratory infections than has been su quently observed over a 10-year period. These facts sugges combination of circumstances that favored dissemination of virus and development of clinically manifest disease: a gro ing of susceptibles, as proved by the high attack rate, an relatively sudden and common exposure of five persons thereafter served as reservoirs of infection. Even postulating all 190 boys were infected, the number (13) showing paresi paralysis gives an attack rate some 10 times greater than lifetime rate for the general population—and this withi period of two weeks. Search was made for conditioning fac that may have increased the susceptibility of the group. course of the outbreak shows a time relation to a wave of pital admissions (62) for respiratory infections developin April and the first half of May, 1936. During the period of M through May 20, 41% of boys in whom poliomyelitis developed had upper respiratory infections. The interval bet onset of the two types of illness in 10 boys averaged nine a half days. Five of these 10 exhibited signs of bulbar inv ment. This seems to indicate that upper respiratory infe was one of multiple factors in an outbreak of poliomyelitis c acterized by high frequency of clinical manifestations among total number of boys who could have been infected with virus of poliomyelitis. The authors feel that the hypothesis naturally occurring infections may influence the developm of the clinical manifestations of poliomyelitis is worthy of fu epidemiological and experimental study.

New Jersey Medical Society Journal, Trenton

48:351-398 (Aug.) 1951

Treatment of Cardiac Emergencies with K-Strophanthoside and L side C. M. C. Ritota.—p. 354.
Use of Various Insulins with Special Reference to Timing. (Knowels and J. J. Kristal.—p. 357.
Active Fields in Gynecologic Cancer. J. A. Corscaden.—p. 361.
Epidermoid Carcinoma of Anal Canal. J. Gerendasy.—p. 365.
Treatment of Trichomonas Vaginitis: Use of Improved Vaginal (J. T. Cortese and J. Padovano.—p. 367.

Pediatrics, Springfield, Ill.

8:163-308 (Aug.) 1951

Inconclusions of Studies, Mostly of Premature Infants. H. H. G —p. 163.
*Inhibition of Growth and Other Effects of ACTH in Premature I W. A. Silverman, R. L. Day and F. C. Blodi.—p. 177.
Coarctation of Aorta as Cause of Death in Early Infancy. R. C. J. E. Edwards and J. W. DuShane.—p. 192.
Mumps Meningoencephalitis: With Special Reference to Use of C ment-Fixation Test in Diagnosis. L. P. Kravis, M. M. Sigel a Henle.—p. 204.
Idiopathic Aplastic Anemia in Children: Its Early Differentiatio Aleukemic Leukemia by Bone Marrow Aspiration. P. Sturgeon.–
Repeated Recovery of Spirillum by Blood Culture from Two C with Prolonged and Recurrent Fevers. G. Shwartzman, A. L. Fl M. H. Bass and others.—p. 227.
Poliomyelitis and Coxsackie Viruses in Paralytic Poliomyelitis. Curnen and J. L. Melnick.—p. 237.
*Treatment of Chronic Shigella Infection in Children with Oral myxins. D. Lieberman and E. Jawetz.—p. 249.
Cor Pulmonale in Infancy and Early Childhood: Report on 34 P with Special Reference to Occurrence of Pulmonary Heart Dis Cystic Fibrosis of Pancreas. S. W. Royce.—p. 255.

Effects of Corticotropin in Premature Infants.—This report with the systemic rather than the ocular effects of cortico in 19 premature infants with retrolental fibroplasia. The was given in doses varying from 1.7 to 20 mg. per kil of body weight daily for 9 to 27 days. Five infants were second courses of corticotropin. Infants who were given than 5 mg. of corticotropin per kilogram of body weight became hyperirritable and ravenous. Many became palli mediately after the injection of the drug. During treat a severe hand infection caused by Staphylococcus a hemolyticus occurred in one infant and could be controlled antibacterial therapy. The 24-hour urinary output of form hydogenic steroids of untreated premature infants incr directly with increased body weight. Following the admin tion of corticotropin, the 24-hour output of "corticoster increased rapidly and remained pronouncedly elevated during the course of therapy. Retardation of growth occurred during the administration of more than 5 mg. of corticotropin per kilogram of body weight per day. "Rebound" increase in growth took place when administration of corticotropin was stopped. Two infants died after completion of treatment with corticotropin. One death was attributed to pneumonia following fortuitous aspiration of food. The other occurred 24 hours after corticotropin therapy was stopped, on the third day of oral administration of cortisone, and for want of another explanation it must be presumed to be related to the use of these drugs. The death of these two infants emphasizes that when prolonged hyperadrenocorticism has been induced in a premature infant, the latter must be carefully observed for the possibility of a sudden change in his clinical condition.

Polymyxins in Chronic Shigella Infection.—Twenty-three children between 2 and 11 years were selected from three cottages in an institution for mentally defective children in which bacillary dysentery was known to be endemic. The selected children were either asymptomatic carriers of Shigella or were suffering from chronic relapsing infections with S. paradysenteriae (Flexner) with acute symptoms. These patients were placed in isolation wards and were given polymyxin B or E by mouth in daily doses of approximately 15 to 20 mg. per kilogram of body weight for 10 days. The total daily dose was given in three equal portions. Of the 23 children treated with polymyxin, 20 (87%) were unequivocally cured of their infection, which had previously resisted therapy with sulfonamides and other antimicrobial agents. They remained bacteriologically negative for eight weeks after the end of treatment. No toxic side effects of the drug were observed. No difference was noted between the efficacy of polymyxin B and E. Polymyxin appears to be a useful drug for the oral treatment of chronic Shigella infection. Treatment with repeated courses appears feasible in view of the lack of toxicity of the polymyxins taken orally. These drugs are suggested for treatment of entire institutional populations wtih a high endemic incidence of Shigella infection.

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Postgraduate Medicine, Minneapolis

10:175-268 (Sept.) 1951

Clinical Significance of Hematuria. C. C. Higgins.—p. 175.
Therapy of Chronic and Acute Lupus Erythematosus. J. H. Lamb, C. J. Young and C. Keaty.—p. 182.
Caries Control in Medical Practice. M. Massler and J. D. Zwemer. —p. 187.
Treatment of Megaloblastic Anemia in Infancy. C. W. Woodruff and J. C. Peterson.—p. 189.
Indications for Tonsillectomy and Adenoidectomy. F. L. Lederer.—p. 191.
Clinical Manifestations and Management of Jaundice. F. Steigmann, K. A. Meyer, H. Popper and others.—p. 197.
Primary Hyperparathyroidism. L. P. Howell.—p. 208.
Management of Low Potassium State in Patients on Low Sodium Diet. R. E. Fremont, A. B. Rimmerman and H. E. Shaftel.—p. 216.
Perforation of Intestine Without External Trauma. C. P. Schlicke. —p. 222.
Skin Lesions and Central Nervous System Diseases. H. H. F. Reese. —p. 230.
Chronic Cystic Mastitis and Cancer of Breast. H. A. Oberhelman. —p. 237.
Elderly Primipara: Statistical Study of 446 Consecutive Cases. E. H. Dennen and W. H. Ainslie.—p. 241.
*Herniated Cervical Intervertebral Disk Simulating Angina Pectoris. H. B. Weinberg, O. R. Hyndman and M. W. Van Allen.—p. 247.

Herniated Cervical Disk Simulating Angina Pectoris.—A man, 59, complained of intermittent pain in the substernal and left ulnar regions two years after an acute myocardial infarction. Electrocardiography utilizing unipolar limb leads and multiple chest leads revealed definite evidence of coronary artery disease. The attacks of pain, however, did not follow the pattern seen in angina pectoris, and neurological examination revealed hypalgesia of the ulnar aspect of the left hand and wrist, weakness in flexion of the fourth and fifth fingers, weakness in adduction of all fingers, and weakness in apposition of the thumb and little finger. There was atrophy of all the interossei. These findings suggested nerve root compression. Radiographic study showed diminution of the disk space between the sixth and seventh cervical vertebrae. At operation a large calcified herniated intervertebral disk, which was compressing the left seventh cervical nerve root, was removed. The pain disappeared and has not recurred. This case suggests that in suspected or even proved coronary disease the physician should make a careful examination of the hands in relation to muscular atrophies, weakness, and sensory disturbances. The presence of such findings should arouse suspicion of a possible herniated disk.

Review of Gastroenterology, New York

18:553-616 (Aug.) 1951

Acute Cholecystitis and Biliary Tract Disease. F. Glenn.—p. 563.
Surgical Therapy for Gastrointestinal Hemorrhage in Portal Hypertension. L. M. Rousselot.—p. 575.
Kolantyl, New Antispasmodic Preparation for Combined Therapy of Peptic Ulcer: Preliminary Report. A. R. Hufford.—p. 588.
Symbol Observed on Migraine Cases. T. S. Heineken.—p. 596.
Deodorization of Colostomies with Chlorophyll. M. Weingarten and B. Payson.—p. 602.

Rhode Island Medical Journal, Providence

34:349-404 (July) 1951

Periodic Disease, Tenth Annual Charles V. Chapin Oration. H. A. Reimann.—p. 365.
Democracy, Medical Progress and American Medical Association. E. J. McCormick.—p. 370.

U. S. Armed Forces Med. J., Washington, D. C.

2:1123-1268 (Aug.) 1951. **Partial Index**

Thoracic Injuries in World War II: I. General Considerations, Alterations of Pulmonary Physiology, and Therapy in Initial and Reparative Phases. H. K. Gray and J. D. Fryfolge.—p. 1127.
Electromyography. A. E. White and J. D. Amos.—p. 1151.
Treatment of Frostbite of Toes. J. B. Irwin and H. Schultz.—p. 1161.
Banthine in Treatment of Duodenal Ulcer. M. M. Meyer and J. A. Jarman.—p. 1165.
Thrombophlebitis. J. T. Rush and J. H. Forsee.—p. 1169.
Tantalum Foil Used in Closing Antro-Oral Fistulas. E. J. McClung and J. E. Chipps.—p. 1183.
Liver Suture. R. S. Silvis.—p. 1205.
Concealed Delayed Hemorrhage. J. T. Helsper, A. O. Heldobler and R. C. Anderson.—p. 1221.
*Amebiasis: Evaluation of New Therapies. R. A. Radke.—p. 1231.
Craniotomies in Korea. G. Clark.—p. 1235.
X-Ray Cones from Shell Casings. W. R. Scott.—p. 1239.
Portable Field and Aircraft Inhalator. R. G. Witwer, J. E. Ganci and H. B. Wright.—p. 1243.

Amebiasis: Evaluation of New Therapy.—In the patients studied by Radke the presence of Endameba histolytica was demonstrated in material aspirated from rectosigmoidal lesions or in fecal material. Thirty-five patients with amebiasis were treated with quinacrine and carbarsone, 38 with chloroquine and carbarsone, 33 with aureomycin alone, and 33 with an aureomycin, quinacrine, and carbarsone combination. Five patients included in the quinacrine-carbarsone group, three in the chloroquine-carbarsone group, one in the aureomycin group, and all of those in the aureomycin-quinacrine-carbarsone group had previously been treated unsuccessfully by other means. The quinacrine-carbarsone patients usually became symptom-free within the first five days of treatment. Yellow discoloration of the skin occurred in all patients, and some had nausea and vomiting, which disappeared when treatment was discontinued. The failure rate was 11%. The chloroquine-carbarsone group showed symptomatic improvement within five to seven days. A peculiar paresis of pupillary accommodation, which consisted in an inability to hold the focus longer than a few seconds, occurred in almost every patient. In addition, most of these patients had severe nausea and vomiting, which in two patients necessitated discontinuation of treatment. The failure rate was 78%. Some of the aureomycin-treated group showed symptomatic improvement of bowel symptoms within two days. Nausea, vomiting, and diarrhea developed in about half of the patients. The failure rate was 65%. The aureomycin-quinacrine-carbarsone treated group usually showed improvement of bowel symptoms within the first two days. As in the quinacrine-carbarsone group, a few patients complained of nausea and vomiting. The failure rate was 12%. Radke feels that patients with amebiasis can be managed either with quinacrine and carbarsone or with a quinacrine-aureomycin-carbarsone combination on an outpatient status. He hospitalizes only those with hepatic involvement accompanied by fever, those whom he suspects will not take the drug unless supervised, and those with severe reactions to treatment.

FOREIGN

Acta Gastro-Enterologica Belgica, Brussels

14:583-650 (July-Aug.) 1951. **Partial Index**

*Neurogenic Agent in Pathogenesis of Acute Pancreopathies. O. F. Longo, C. S. Gallardo and A. Ferraris.—p. 583.
Experimental Study of Ulcer Produced by Ligation of Pylorus in Rats: Protective Action of Diethazine Hydrochloride (2987 RP, Diparcol). K. Kowalewski, J. Van Geertruyden, E. Henrotin and W. Gepts. —p. 596.

Neurogenic Agent in Acute Pancreatitis.—Experiments by Popper and co-workers in the United States and by Mallet-Guy and co-workers in France were repeated by the authors. Results demonstrated that the splanchnic nerve plays an important part in the pathogenesis of acute pancreatitis. In this nerve two types of fibers are to be distinguished: the preganglionic and efferent vasomotor fibers, the stimulation of which determines vasoconstriction of the abdominal viscera, and the afferent sensory fibers, which under certain conditions may produce intensive arteriolocapillary dilatation. To supply evidence of the causative role of the latter mechanism in acute pancreatitis, additional experiments were carried out on dogs. Tetraethylammonium chloride was injected intravenously, thus inhibiting the vasoconstrictor fibers that cause spasms. After this injection, the left splanchnic nerve was stimulated twice for 20 seconds. Fatty necrosis of the pancreas was produced despite the blocking of the vasoconstrictor fibers. In another series of experiments the splanchnic nerve was sectioned, and, after an interval of 7 to 10 days, stimulation of this nerve was effected by injection of secretin or hydrochloric acid. Thus, sufficient time was allowed for wallerian degeneration to be produced at the peripheral end of the splanchnic nerve. Under these conditions only the afferent sensory fibers with cells in the spinal ganglion degenerate. On the contrary, the vasoconstrictor fibers in the preganglionic neuron are sectioned, while the postganglionic neuron, i. e., the one that produces the vasospasms, remains unimpaired. Necropsy revealed abdominal vasodilatation, and photomicrographs showed "pancreas with edema." Results thus demonstrated that the vasoconstrictor fibers are not the eliciting factor and that it is the stimulation of the sensory fibers of the splanchnic nerve that determines the initial vascular changes of the disease process.

ritish Journal of Industrial Medicine, London

8:117-198 (July) 1951

Effect of 2-3 Dimercapto-Propanol (BAL) on Experimental Nickel Carbonyl Poisoning. J. M. Barnes and F. A. Denz.—p. 117.
History of Lung Diseases of Coal Miners in Great Britain: Part I, 1800-1875. A. Meiklejohn.—p. 127.
Use of Standard Films in Radiological Diagnosis of Coalworkers' Pneumoconiosis. C. M. Fletcher and P. D. Oldham.—p. 138.
*Peritendinitis Crepitans and Simple Tenosynovitis: Clinical Study of 544 Cases in Industry. A. R. Thompson, L. W. Plewes and E. G. Shaw. —p. 150.
Air-Borne Dust Conditions in British Wartime Flax Scutching Factories. K. L. Goodall and P. J. Hardwick.—p. 161.
Erosion of Teeth Due to Tartaric Acid Dust. W. B. Elsbury, R. C. Browne and J. Boyes.—p. 179.
Rapid Estimation of Mercury in Atmosphere of Workrooms. M. Buckell. —p. 181.

Tenosynovitis.—This paper deals with simple or traumatic tenosynovitis as distinct from pyogenic or granulomatous involvement of the tendon sheaths. The 544 patients here reviewed were studied between 1941 and 1950 and were mostly factory workers, agricultural workers, and housewives. The tendons most frequently affected were the radial extensors of the wrist (extensor carpi radialis longus and brevis) and the abductor pollicis longus or extensor pollicis brevis, either alone or in combination. This lesion accounted for 419 (77%) of the whole series. The main factors in the etiology were change necessitating unaccustomed movement, resumption of work after absence, repetitive stereotyped movement, and local strain. The term tenosynovitis applied to the usual crepitating condition found proximal to the wrist joint is a misnomer. The actual site of the lesion is well above the upper limit of the tendon sheaths at the wrist, which are unaffected, the local pathology suggesting that it is essentially a perimyotendinitis involving the musculotendinous junction higher up in the forearm. It is suggested that peritendinitis crepitans, or perimyotendinitis crepitans, is a more accurate description for this condition and should replace the name tenosynovitis. Simple tenosynovitis, involving the tendon sheaths only, was observed in the other 125 patients. Pathologically, these lesions seem to represent an inflammatory response to strain in particular groups of muscles. The prognosis is good, and cessation of work is neither desirable nor necessary. Rigid immoblization in plaster of Paris is contraindicated and is associated with a high relapse rate. Where the lesion is situated proximal to the wrist, as in peritendinitis crepitans, treatment by immobilization should always include the thumb, because of the frequency with which the latter is involved. This is best effected by means of a detachable plastic splint, which permits very slight movement within the splint and will allow early passive movements to be given every other day. Short wave therapy is valuable in the treatment of certain resistant cases and can conveniently be given when a detachable splint is in use. The splint may be gradually discarded over several days, and the patient can frequently continue at his normal work. Subsidence of signs and symptoms may be expected by the eighth or ninth day of treatment.

British Journal of Radiology, London

24:413-468 (Aug.) 1951

SYMPOSIUM ON RADIATION CHEMISTRY

I. Radiation Chemistry in Relation to Radiobiology. C. B. Allsopp. —p. 413.
II. Elementary Processes in Radiation Chemistry of Water and Implications for Radiobiology. M. Burton.—p. 416.
III. Hydrogen Peroxide Formation in Water Exposed to Ionizing Radiations. P. Bonét-Maury.—p. 422.
IV. Review of Evidence for Production of Free Radicals in Wat Consequent on Absorption of Ionizing Radiations. F. S. Dainton —p. 428.
V. Some Aspects of Biochemical Effects of Ionizing Radiations. W. Dale.—p. 433.
VI. Radiation Chemistry of Organic Halogen Compounds. W. Minde —p. 435.
Prolapse of Prepyloric Mucosa. P. F. J. New.—p. 441.
Intravaginal X-Ray Therapy of Malignant Gynaecological Tumours. R. Kepp.—p. 454.

Canadian Journal of Medical Sciences, Ottawa

29:151-238 (Aug.) 1951. ***Partial Index***

*Effect of Ascorbic Acid on Experimental Hypertension. O. Héroux a L. P. Dugal.—p. 164.
Plasma Ascorbic Acid and Pituitary-Adrenal Activity. F. R. Skeleton C. Fortier.—p. 176.
Enzymes of Gray Matter and White Matter of Dog Brain: Distribution Certain Nonoxidative Enzymes. A. R. McNabb.—p. 208.
Poliomyelitis in Canadian Eskimos: Laboratory Studies. II. E. M. Cl and A. J. Rhodes.—p. 216.

Ascorbic Acid and Hypertension.—Previous investigations the effect of ascorbic acid on the blood pressure revealed th the acid given in large doses has a hypotensive effect on norm blood pressure; that the initial hypotension due to sudden posure to cold was prevented by large doses of ascorbic ac and that the hypertension encountered upon long exposures cold was lowered. The present paper confirms the last result a also shows that ascorbic acid has a hypotensive action on perimental hypertension obtained by: (1) excess of sodi chloride in drinking water and (2) renal compression. The hyp tension and adrenal hypertrophy caused by long exposure cold regress when the animals are brought back to normal te perature. In its initial phase, the experimental renal hypertensi is lowered by ascorbic acid but this effect cannot be obtained the chronic phase.

Giornale di Clinica Medica, Parma

32:505-620 (May) 1951. **Partial Index**

Role of Adrenal Cortex in Hyperthyroidism Revealed by Assay of Keterosteroids and Glucocorticoids in Urine. P. Lorenzini and G. V getti.—p. 505.
*Considerations on 40 Cases of Cancer of the Lungs. G. Casolo.—p. 532

Cancer of the Lungs.—Clinical observations on 40 patients wi cancer of the lungs are reported. The diagnosis was establish by roentgenologic examination in 16 patients, in 5 by roen genographic detection of bone metastases, in 5 by biopsy supraclavicular or lateral cervical lymph nodes, and in fourteen by bronchoscopy and bronchial biopsy. In one patient the previous diagnosis was confirmed by microscopic examination of tissue expectorated in coughing. *Surgical intervention* seemed justified in three patients. One with adenocarcinoma localized in the upper left lobe underwent lobectomy but died within four months from cerebral metastases. Of the two patients with invasive cancer of the upper lobe who underwent pneumonectomy, one died within six months because of cancer cachexia and one is still living but has metastases in the supraclavicular lymph nodes. Twenty-nine patients died, and there is no hope of recovery for the eight still living. These discouraging data are explained by the fact that the disease was too far advanced at the time of consultation, either because symptoms had been absent or atypical or because the patient had delayed too long before seeking aid. The author reviews the objective and subjective symptoms of pulmonary cancer and stresses the necessity of early diagnosis, which may be facilitated by periodic mass radiography.

Presse Médicale, Paris

59:1109-1124 (Aug. 18) 1951

*Complex Pseudodeficiency Syndromes After Gastrectomy. R. Cattan, R. Carasso and P. Frumusan.—p. 1109.
Statistical Research on Accidents Caused by Snake Bite in Denmark and in Sweden During Period of 1900 to 1947. H. Marquart.—p. 1110.

Pseudodeficiency Syndromes After Gastrectomy.—Several years ago French investigators reported for the first time the occurrence of a grave and complex deficiency syndrome in patients having undergone gastrectomy. The authors reported in an earlier paper on three patients who had clinical characteristics of progressive emaciation, diarrhea, edema, and anemia, and the biological characteristics of a pronounced fall in serum proteins as well as pronounced hypolipoidemia. The diagnosis of this deficiency syndrome should be based on both clinical and biological criteria. The present report concerns three patients on whom gastrectomy had been performed, two men, aged 37 and 54, and one woman aged 42, in whom an erroneous diagnosis of this deficiency syndrome was made on the basis of clinical observations of emaciation, edema, anorexia, and anemia. Nutritional disturbances simulated a "deficiency syndrome," while a thorough examination revealed a rectoperitoneal metastasis in the first male patient, cirrhosis of the liver in the second, and a deficiency state associated with hypoglycemia in the woman. Although all three presented the clinical characteristics of the true deficiency syndrome, the functional tests were negative. The lipid contents of the blood were normal in all three patients, and the serum proteins did not show any change in the man with rectoperitoneal metastasis nor in the female patient. Only the second male patient had hypoproteinemia, but determination of the galacetose concentration in the urine and puncture biopsy of the liver demonstrated that the hypoproteinemia was attributable to the cirrhosis of the liver. From the observations in these three cases the authors conclude that the true deficiency syndrome is a severe but rare complication of gastrectomy.

Ugeskrift for Laeger, Copenhagen

113:885-918 (July 5) 1951

*Acute Laryngotracheobronchitis in Children. S. O. Siemssen.—p. 885.

Acute Laryngotracheobronchitis in Children.—Siemssen asserts that acute nonspecific laryngotracheobronchitis in children is not well enough known. He attributes to it a number of unexplained deaths in children and cases erroneously diagnosed as primary pulmonary affections. It is defined as a symptom complex depending on an infectious nonspecific, probably virogenic, descending stenosing process in larynx and the lower respiratory passages. In acute cases suffocation is the immediate danger. When the course is more protracted hyperpyrexia and shock threaten as a general reaction to the infection. Pulmonary complications aggravate the prognosis. The disorder is a grave complication in epidemic subglottal pseudocroup. It sometimes, not often, appears as a complication in acute contagious diseases of children. Attention is called to the peculiar regression from laryngeal stridulous dyspnea to superficial tracheobronchial dyspnea without stridor on spread of the stenosing process to the lower respiratory passages. Four cases are presented in detail. With the present day chemotherapy treatment is now attempted along conservative lines. The necessity for careful observation and readiness for possible endoscopic surgical intervention is stressed. The cooperation of practitioners, internists, or pediatricians and otolaryngologists is important.

113:919-956 (July 12) 1951

*Myelosclerosis. A. Pinholt Andreasen.—p. 919.
*Osteosclerosis Disseminata Familiaris: Review and Five New Cases. H. P. Østergård Kristensen.—p. 929.
*Diagnostic Splenic Puncture: Experiences in Examination of 300 Punctates. C. Johansen.—p. 933.

Myelosclerosis.—Andreasen describes six cases of myelosclerosis, each in its way typical. Maturation substances necessary for bone marrow function are thought to be formed or absorbed by the organism and carried by the bloodstream to the bone marrow. The syndrome of myelosclerosis consists of (1) a primary inflammation of the bone marrow with small hemorrhages and necroses followed by fibrosis and sclerosis, (2) extramedullary foci in the spleen, which substitute for the bone marrow and from which immature blood corpuscles enter the peripheral blood, and (3) inhibition of the remaining intact bone marrow. The splenomegaly secondary to the bone changes may become marked. Hemopoietic foci may be found in the liver and, rarely, in the lymph nodes. As there may be larger or smaller areas with normal or hyperplastic bone marrow in between fibrous bone marrow, myelosclerosis cannot be excluded if the first biopsy is normal. Cancer metastases to the bones may give a picture like that of osteosclerosis in myelosclerosis. Careful search for a primary tumor must be decisive in cases with short history; long history testifies against cancer. In every case of chronic aleukemic leukemia or enlarged spleen in supposed polycythemia, the possibility of myelosclerosis should be considered. Many cases in which transition between true polycythemia and chronic myeloid leukemia have been described are believed to have been cases of myelosclerosis, where first the erythropoietic tissue in the spleen then the myelopoietic tissue has predominated. Correct diagnosis of myelosclerosis is important, because the therapy indicated in most of the disorders readily confused with it is contraindicated in myelosclerosis. Splenectomy or powerful irradiation of the spleen deprives myelosclerosis patients of their extramedullary hemopoietic apparatus, and grave blood crises result. Most patients live several years after the diagnosis of myelosclerosis. One of the cases reported was exceptional in that the course was violent and ended fatally a year and a half after diagnosis.

Osteosclerosis Disseminata Familiaris.—Kristensen concludes that osteosclerosis disseminata familiaris is a benign bone disease with generalized symmetric localization, in some cases accompanied by characteristic cutaneous changes. It is a familial constitutional anomaly transmitted by dominant inheritance. The five cases reported, all in one family, were an accidental finding on roentgen examination for other cause. Cutaneous changes seen in two cases were typical in one case, less characteristic in the other. The blood picture, examined in two cases, was normal, as were the serum calcium and serum phosphatase examined in one case. One patient had vague joint symptoms and muscular weakness of transient kind, another had had rheumatic pain in the muscles since childhood.

Diagnostic Splenic Puncture.—Johansen says that in recent years more exact diagnosis of hematological and parahematological affections has become necessary, since the use of such potent therapeutic substances as urethane, 4-aminopteroyl glutamic acid (aminopterin®), radioactive phosphorus, corticotropin, and cortisone depend on the diagnosis. Particularly is this true with regard to the differential diagnosis of chronic myeloid leukemia, leukemoid myeloid reactions, polycythemia, and splenogenic anemias including the nonspecific reticuloses. Examination of the splenic punctate may be a valuable supplement to examinations of the blood and bone marrow in almost all forms of splenomegaly. In obscure and borderline cases, splenic puncture not infrequently gives important information, without which there is danger of institution of wrong treatment, with grave or even fatal consequences.

BOOK REVIEWS

Inhalation Anesthesia: A Fundamental Guide. By Arthur E. Guedel, M.D. Second edition. Cloth. $3.75. Pp. 143. The Macmillan Company, 60 Fifth Ave., New York 11, 1951.

In a book written by one of the venerable men in anesthesia in this country, one expects to encounter indications of philosophic reflection on a practice of anesthesia which has extended over many years and has been of a pioneer nature. Those who read Dr. Guedel's new edition of his standard textbook will be pleased to note that there is ample opportunity for obtaining good insight into his philosophy regarding the practice of high quality anesthesia.

Dr. Guedel developed his original edition as a result of a demand for a forthright manual on the everyday clinical practice of anesthesia. His approach to the problem was based on his extensive experience in instructing a heterogenous personnel during World War I. He has maintained the same simple plan in presenting the material in the new edition, and the neophyte in anesthesia will be able to acquire and apply the material available to him in this book with satisfaction and safety. The book is more on the order of a manual rather than a reference book or complete textbook. Each problem is treated concisely, and there is a minimum of physiologic and pharmacologic background material. There is room for argument about his interpretation of some of the latter material that is included, but this does not detract from the practical usefulness of the book and it is not erroneous.

The format is good, with readable type and appropriate paragraphing. There is a minimum of illustrations but little indication for more. The writing is lucid and the style simple. There is a good reference bibliography, but one is somewhat surprised to find John Snow's excellent monographs missing from the list.

The case reports that are included are presented in a most interesting and homely style and are useful in pointing up common anesthetic problems. These reports give an insight into the tremendously extensive experience in anesthesia that this outstanding man has had. The reports also give a clear representation of how easy it is to overlook details that predispose to nesthetic difficulties.

The book is heartily recommended for those who are looking or a simple introduction into the specialty of anesthesiology and for those who are interested in the experiences and philosophy of a pioneer in the field.

The Electrocardiogram in Pulmonary Tuberculosis. By Allan Björkman, Med. Lic., S.N. [Thesis, M.D., Uppsala University.] Translated by K. M. Lindskog. Paper. Pp. 152. Esselte Aktiebolag, Stockholm, 1951.

This monograph is a study based on careful measurement of the various components of the electrocardiogram in the three standard limb leads in four groups of patients; tuberculous patients, controls, ambulant pneumothorax patients, and patients with acute rheumatic fever. The author observed a greater incidence of abnormal electrocardiograms among tuberculous than the nontuberculous patients. He noted a tendency especially toward lower P and T waves in leads 1 and 2 among the tuberculous patients, the differences from the control group being statistically significant. The various factors that could possibly be responsible for these differences were then studied. They included the incidence of nontuberculous heart disease, changes in heart position due to body build or collapse therapy, the importance of increased heart rate, chronic cor pulmonale, the severity of the tuberculosis, and bed rest. By statistical analysis the author claims that, after all of the above factors are taken into consideration, singly or in combination, they could not be considered the cause of the abnormalities in the P and T waves in the tuberculous patients. He further shows that similar changes occur in acute rheumatic fever. He concludes that the changes in the electrocardiograms in the patients with tuberculosis are due to some as yet poorly understood form of myocardial damag It is hinted that a possible relationship may exist between the electrocardiographic abnormalities and some of the anatom changes in the heart occasionally reported at necropsies tuberculous patients, such as interstitial myocarditis, Aschof nodules, and brown atrophy.

The book is mainly statistical. There are no illustrations chest roentgenograms or electrocardiograms. Limb leads alo were studied. In some cases, in order to isolate some factor f study, repeated subdivisions are made of an initially large grou This leads often to comparisons of groups that have thus beco too small for valid comparison. The book includes a good view of the literature of heart disease and the electrocardiogra in tuberculosis.

The Chemical Senses. By R. W. Moncrieff. Second edition. Cloth. 2 Pp. 538, with 30 illustrations. Leonard Hill Limited, 17 Stratford London, W.1, 1951.

The author gives a detailed account of the modern know edge of taste, smell, and related chemical senses, and he sum marizes the accumulated work of so many chemists, physiolo gists, and psychologists that the total effect is most impressiv The information is well digested, and the treatment is cons quently unified and coherent. Of special medical interest are t discussions of anosmia and parosmia (pages 113 to 119). more general interest are the recent discoveries about tas blindness, as illustrated by phenylthiocarbamide (pages 151-1 169, and 219), and the author's 62 principles relating chemi constitution to odor (pages 300 to 304). The necessarily frequ references to such things as lemon and mint, tansy, and g anium give the book an intrinsic esthetic appeal, but the subj has innumerable practical applications in the processing of fo and the manufacture of cosmetics. Workers in these fields, well as chemists, physiologists, and psychologists, will find t book indispensable. It deserves high praise.

Surgery of the Stomach & Duodenum: A Handbook of Operative gery. By Claude E. Welch, M.D., Associate Visiting Surgeon, Massa setts General Hospital, Boston. Cloth. $8.50. Pp. 349, with illustration Muriel McLatchie Miller. Year Book Publishers, Inc., 200 E. Illinois Chicago, 1951.

It is the experience of most surgeons in charge of surg services in hospitals to find that the interns and residents surgery have but a vague idea regarding the important p cedures on the stomach and duodenum. This confusion is larg due to a profusion of names given to the various operative int ventions on these viscera as well as to the lack of agreem among the surgeons themselves as to what is Billroth I, I roth II, the Hoffmeister, or Reichel. Furthermore, there is quently a lack of understanding of the physiologic effects these procedures. This small volume is intended to fill this g The practical value of the book is in the fact that the aut limits himself to the more important and more frequently p formed operations, to the exclusion of the rarer interventio The author relies more on illustrations than on text. Bre and emphasis on what is important should make this sm volume particularly valuable for the intern, the resident, the younger surgeon.

Handbook of Gynaecology. By Trevor L. S. Baynes, M.D., F.R.C M.R.C.O.G., Consulting Gynaecologist, Bolingbroke Hospital, Lon Cloth. 15s. Pp. 163. Sylviro Publications, Ltd., 19 Welbeck St., Lon W.1, 1951.

This small volume is intended primarily as an outline of gy cology; it contains an excellent summary of the best teach in this subject. It is not the intention of the author that it s stitute as a textbook, but it will function best as a pocket-s manual for candidates for examinations. The field is well c ered, and no criticism is found in the discussions of the subj matter. The book compares very favorably with others used "brush-up" courses.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Symposium on Burns. Held at request of Committee on Medical Sciences of Research and Development Board, National Military Establishment by Subcommittee on Burns of Committee on Surgery of National Research Council, November 2-4, 1950. Paper. Pp. 207, with illustrations. National Research Council, National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C., 1951.

The symposium included practically every aspect of the subject of burns. The problem of radiation received considerable attention. Everett I. Evans emphasized that the experiences with the atomic bomb explosion at Hiroshima indicated that death was caused by mechanical trauma, thermal trauma, and radiation. He emphasized that the burn problem in atomic bomb explosion is not that of a simple burn but one that is complicated by radiation injury. The introduction of flame throwers presented physiologic problems which were discussed by James Walker. The subject of fluid and electrolyte requirements in burns was considered in its many aspects. Renal and pulmonary complications accompanying severe burns were presented from the experimental viewpoint and from clinical experience. Treatment of burned area, infections in severe burns, and nutritional care of burn patients occupied a portion of the third session. Early débridement of burn wound, plastic repair of severe burns, as well as the subject of triage and evacuation were included in the discussion. The symposium represents the most recent and most authoritative information on burns. It marks an important step in the functioning of the National Research Council. Its value is that of crystallizing the available information on the subject and probably even leading to reorientation of the entire research program in this important field.

A Doctor's Pilgrimage. By Edmund A. Brasset, M.D. Cloth. $3.50. Pp. 256. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5, 1951.

Any physician who is engaged in general practice, particularly if he started his practice in a small town during the depression 1930's, will get a great deal of enjoyment from reading Dr. Brasset's "pilgrimage." Even though he may not have practiced in the far corners of Nova Scotia, he will find that Dr. Brasset's friends and patients epitomize the friends and patients of any doctor in any town. Long-forgotten memories will spring to life as he reads descriptions of interesting persons, trying situations, joys and sorrows associated with growing up in medicine.

This is a delightful story that started with a young man in medical school; it follows his thinking and his actions step by step through his first attempts at practice and experience with contract practice, a period in an institution, and finally the joys of a practice that really worked out. Throughout all of this, one can feel the guiding influence of the wise young woman that the doctor married. At the end of the story he reaches the fulfillment of his life-long desire to study brain surgery and discovers that, after all, his life is with his people, so he goes back to take up general practice where he left it.

In small communities physicians might recommend this book to selected friends and patients as a public relations gesture in giving them one doctor's point of view of the attitude physicians have toward patients and people in general. It is a healthy point of view that any physician could well endorse.

Return from the Pole. By Frederick A. Cook. Edited, with introduction, by Frederick J. Pohl. Cloth. $4.50. Pp. 335, with portrait of author. Pellegrini & Cudahy, Publishers, 41 E. 50th St., New York 22, 1951.

Dr. Frederick A. Cook, a former practitioner of medicine in Brooklyn and a widely known explorer, wrote this account of his return from the North Pole in longhand shortly before his death in 1940, at the age of 70. The controversy concerning whether Dr. Cook discovered the North Pole on April 21, 1908, or whether Admiral Perry did so on April 6, 1909, has raged for many years. This book offers new evidence in this dispute. The book is edited by Frederick J. Pohl, writer on exploration and head of the English department of Boys High School in Brooklyn for many years. Mr. Pohl re-examines the evidence in a lengthy introduction to this book. He concludes that Dr. Cook reached the North Pole. Dr. Cook's daughter aided Mr. Pohl in providing the diaries, notebooks, and unpublished writings of her father. The story as told here is tremendously interesting. Dr. Cook was accompanied on his final dash north from Greenland by two young Eskimos. They selected a route which enabled them to feed themselves and their dogs from musk oxen and bears secured along the way for half of the polar distance. As they expected to return along the same route, they left caches of food and equipment at land points every 50 miles. But they became lost on their return journey and traveled a much longer and more hazardous route, which delayed them for a year. They encountered hardships that few human beings have endured. They traveled for days on floating ice, lived for a time on an iceberg, and spent the long arctic night in a cave in which there was room for only one man to stand up at a time and in which they were frequently endangered by wild animals. They suffered from the intense cold and from hunger. Their determination to live and return home nobly demonstrates how the spirit of man can overcome almost unbelievable physical hardships.

Anatomy in Surgery. By Philip Thorek, M.D., F.A.C.S., F.I.C.S., Assistant Clinical Professor of Surgery, University of Illinois College of Medicine, Chicago. Cloth. $22.50. Pp. 970, with 720 illustrations by Carl T. Linden. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1951.

This excellent volume, which should be well received by the surgical profession, will fill a real need in surgical literature. It is written from a different point of view than have most works on anatomy for surgeons. Operative technic accompanies surgical anatomy. Not all operations are discussed, but in the majority of instances the most important operations are adequately discussed. The volume is not a large one when one considers that the entire body has been covered.

The illustrations are excellent, and the great majority of these are in color. They are attractive and instructional. The material presented is good; it is clearly and concisely presented. Dr. Thorek is an excellent teacher, as this volume demonstrates.

This book is recommended to everyone interested in surgery as a valuable reference volume and at the same time as a volume from which much instruction will be gained. It will be, and should be, well received by the entire surgical profession.

Les ultra-sons appliqués à la médecine. Par André Dénier. Paper. 1000 francs. Pp. 192, with 21 illustrations. L'Expansion scientifique française, 23 rue du Cherche Midi, Paris, 6e, 1951.

The rapidity with which clinical literature on ultrasound has accumulated is astonishing. The report on the 1949 congress on the subject in Erlangen gave a bibliography of 554 references, and a large exhaustive bibliography has recently been supplied by Curry. The present contribution by Dénier summarizes the subject for French readers. It is unfortunately quite uncritical, and the illustration opposite page 96, showing the application of ultrasound to a patient's solar plexus, is typical. The new modality is recommended for everything from enuresis to gingivitis; on page 81 good results are claimed for asthma, and on page 124 the author states that there is nothing to lose by trying ultrasonotherapy for deafness before fenestration. Doubt as to the accuracy of the contents of this book is increased by the unusual number of errors in the bibliography. The "Blades" named on page 67 is a well-known American scientist, and the "Harward" mentioned on page 9 a well-known American university. Schmidt, Pohnssen, and Ohlssen referred to on page 26 are apparently the same as the Schmitt, Johnson and Olson of page 178. The book may be useful to French readers as an introduction to the subject and as a possible source of references that may have escaped other bibliographers but will have little appeal to American physicians.

Summary of Annual Reports of Governments 1949. United Nations Commission on Narcotic Drugs, Economic and Social Council. Paper. 80 cents. Pp. 88. Columbia University Press, 2960 Broadway, New York 27, 1951.

The practicing physician is not apt to be interested in this 88-page pamphlet, which contains information culled from the annual reports submitted by 37 sovereign states and 51 non-self-governing territories. The data presented deal largely with the regulatory control and economic aspects of traffic in narcotic drugs during 1949. Government officials concerned with the enforcement of laws relating to the manufacture, distribution, and sale of narcotic drugs are likely to be most interested in a publication of this nature. Persons concerned with the sociological aspects of drug addiction as a general problem undoubtedly would find it to be a useful reference for obtaining certain valuable and informative data.

QUERIES AND MINOR NOTES

DIABETES MELLITUS

To the Editor:—*A woman, 43, has had diabetes mellitus for three years, and during that period she has lost 20 lb. (9.1 kg.). Her present weight is 118 lb. (53.5 kg.), and her height is 5 ft. 3 in. (160.02 cm.). Her blood sugar averages between 160 and 192 mg. in 100 cc. of blood. Her urine is never sugar-free. For two years she has been taking between 18 and 22 units of protamine zinc insulin daily before breakfast. She was referred to a diabetic specialist, who took her off the insulin and advised her to eat a regular diet. During one week she lost 4 lb. (1.8 kg.). She was then referred to another diabetic specialist, who found 3 + sugar and acetone in the urine. He was not interested in the blood sugar. He advised her to continue with 20 units of protamine zinc insulin daily before breakfast. He did not outline a diet and advised her to eat everything, including bread, potatoes, macaroni, and, occasionally, ice cream. Not once did he perform a blood sugar test. He stated that as long as the patient was symptom-free she need not worry. He diagnosed her case as mild diabetes. In three months she has not gained an ounce. Could you please advise me how she can gain some weight.* *M.D., New York.*

Answer.—It is not stated whether the blood-sugar values were obtained with the patient in the fasting or postprandial state, whether venous or capillary blood was used, or whether the determination was made by a "true" blood-sugar method or one which measures also certain nonglucose reducing substances. However, assuming that the values given were obtained in the fasting state on venous blood samples by the Folin or similar method, then the diagnosis of diabetes would appear to have been established. However, the patient deserves careful study with postprandial as well as fasting blood-sugar determinations and studies to rule out some complication such as hyperthyroidism or tuberculosis.

If possible, the patient should enter a hospital in which a weighed diet may be provided, frequent tests of the blood and urine made, the proper insulin dose established, and detailed instruction given in all phases of the home management of diabetes. The diet should provide 150 to 200 gm. of carbohydrate a day, at least 1 gm. of protein per kilogram of body weight, and sufficient fat to allow the patient to regain weight gradually to within 10 lb. (4.5 kg.) of standard for age, sex, and height. The amount of fat will be presumably between 60 and 100 gm. a day. If on a restricted diet alone a sugar-free urine and satisfactory blood-sugar values cannot be obtained, then insulin should be prescribed in appropriate amount. Presumably this would be of protamine zinc or NPH type without or with an accompanying dose of regular insulin, both given daily before breakfast.

DAMAGE CAUSED BY RIVETING

To the Editor:—*I understand there is a disease of the hands that riveters get from using a riveter for a long time. Is this true?*

Paul L. Stuck, M.D., Wilmington, N. C.

Answer.—The coarse vibration from manual riveting, hot or cold, may result in inflammation in various tissues of the upper extremity and notably lead to tenosynovitis. Another condition, "dead fingers" or "white fingers," is caused by more rapid and finer vibrating tools. For production reasons and to avoid noise (the chief riveting offense) as well as tenosynovitis, much riveting is accomplished by "squeezing." This calls for a different type of equipment, which is commercially available. At present, welding of various types has extensively replaced riveting. The "squeeze" method eliminates both noise and vibration.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

HIATUS HERNIA

To the Editor:—*May I have the latest information on th treatment of diaphragmatic hernia (hiatus)? The patient i aged 73 and has some cardiospasm. There is a sense of di comfort in the mediastinal region, eructation of gas, regurg tation, cough, and expectoration of frothy mucus, day an night. There is cardiac arrhythmia and distress from flat lence, constipation, nervousness, and insomnia. The labor tory reports are normal. The x-ray diagnosis is hiatus.*

M.D., California.

Answer.—The best treatment for hiatus hernia is a tran pleural operation on the left side. Such an approach gives b far the best exposure and, therefore, makes it easier to corre the condition. As a part of the operation it is desirable to r move the sac, as in an operation for any other kind of herni There is some difference of opinion as to whether it is desirabl to paralyze the diaphragm temporarily by crushing of the phreni nerve. To any surgeon with wide experience in intrathoraci surgery the operation is not a difficult one, and it carries low mortality.

The risk in a patient aged 73 is, of course, greater than in a younger person. Sometimes some relief of symptoms may b obtained if the phrenic nerve is crushed in the neck, which naturally an operation of less magnitude. This procedure, how ever, may also sometimes be accompanied by distressing sym toms. One cannot be certain, therefore, whether with the simp phrenic operation of the neck the patient's condition will better, worse, or unchanged.

ISOPROPYL ALCOHOL

To the Editor:—*Please advise me whether isopropanol (refin 91%) can be used in place of ordinary rubbing alcohol general practice for alcohol sponges, giving hypodermics, a cleaning needles and syringes. I clean my hands after exam ing a patient (in the home) with alcohol sponges. Would peated cleansings of the hands with this agent cause deleterious effects?* *M.D., West Virginia*

Answer.—Isopropyl alcohol (isopropanol) may be substitu for ethyl alcohol in many instances. In physical propertie closely resembles ethyl alcohol; it is readily miscible with wa in all proportions and possesses fat solvent properties somewh greater than ethyl alcohol.

Isopropyl alcohol rubbing compound N.F. contains 68 to 72 of isopropyl alcohol, by volume, in water, with or without cer fied coal tar colors and perfume oils. As a disinfectant, isopro alcohol possesses antibacterial properties and limitations simi to those of ethyl alcohol. Neither is sporicidal and should not relied on for sterilization. Many vegetative forms of bacteria destroyed by both alcohols, and isopropyl alcohol is frequen utilized for the disinfection of oral thermometers. Isopro alcohol is available commercially as 91 to 99% by volume; m authorities recommend the concentrated solutions for use as disinfectant, although others recommend 50 to 80% solutio Isopropanol combines readily with proteins and should not used for primary cleansing of syringes and needles. The co mercial preparation may contain spore-forming micro-orga isms, which can be removed by bacterial filters; after filtratio the solution may be used for storage of sterile instrument needles, and syringes. An antioxidant (rust preventer, e. g., s dium nitrate, sodium borate) may be incorporated in solutio used for storage of instruments. For skin disinfection, alcoh and other chemical agents should not be substituted for thorou mechanical cleansing.

The irritant properties of isopropyl alcohol are similar to thos of ethyl alcohol; all syringes and needles should be free fro residual amounts of these compounds prior to hypodermic inje tions. Studies with undiluted and 50% isopropyl alcohol appl cations, twice daily for 25 days, to areas of about 300 sq. cm.

the arms of three persons failed to produce skin irritation or absorption. Local effects, similar to those produced by ethyl alcohol, result from wearing bandages saturated with isopropyl alcohol.

Isopropyl alcohol is a clear, colorless liquid with a slightly bitter taste. It has been reported that humans have imbibed 0.5 to 22 cc. of isopropyl alcohol in strengths comparable to that of wine or whiskey with no evidence of exhilaration or incoordination, although headaches resulted after two or three hours, the pulse was lowered, and some loss in appetite was noted. Inhalation of the vapors does not cause the visual defects associated with methyl alcohol. Isopropyl alcohol requires no government permit or record of its disposition, is not subject to the taxation requirements exercised by the federal government on ethyl alcohol, and therefore has "price appeal" as a disinfectant and solvent.

GAUCHER'S DISEASE AND ATRESIA OF BILE DUCTS IN INFANTS

To the Editor:—*A patient asked whether she could expect a normal child if she should attempt a third pregnancy. In 1946 she delivered a 6½ lb. (2,948 gm.) male at term, who died at 26 months of Gaucher's disease. In September, 1950, she delivered her second child, a 7½ lb. (3,289 gm.) girl who was jaundiced at birth; she was operated on in her third month and found to have atresia of the bile ducts. This child died in her sixth month. The mother's Kahn reaction is negative. She is Rh positive and has always been in good health. The father is also Rh positive (anti-Rho "anti-D" 85%).*

M.D., Missouri.

Answer.—The clinical story presented is not that of isosensitization in pregnancy, and this is borne out by the fact that the patient is Rh positive. The history of the first baby dying from Gaucher's disease and the second with atresia of the bile ducts is indeed remarkable. The cause of these two anomalies is unknown, and, though they appear to be genetically determined, they certainly are not related to each other. With respect to Gaucher's disease, there is evidence of its hereditary transmission as a mendelian recessive, so that when both parents are normal carriers of the gene, as in the present case, one-fourth of the children will be affected. Therefore, the chance of this condition's recurring in subsequent children is 1 in 4. With respect to congenital malformation of the bile ducts, this also appears, at least in some families, to be inherited as a recessive, and Sweet encountered a family in which three consecutive infants died from complete atresia of the bile ducts. Since presumably Gaucher's disease and atresia of the bile ducts are independently inherited, and for each condition the chance of the baby's being unaffected is three-fourths and of being affected is one-fourth, the prospect for the next baby would be as follows: perfectly normal, 9/16; affected with Gaucher's disease but without atresia of the ducts, 3/16; having atresia of the ducts but not Gaucher's disease, 3/16, and affected by both conditions, 1/16.

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POLYCYTHEMIA RUBRA VERA AND BLOOD TRANSFUSIONS

To the Editor:—*Should persons with polycythemia rubra vera be used as donors in routine blood transfusion work?*

Merrill J. Wicks, M.D., Tacoma, Wash.

Answer.—There is no sound scientific contraindication to the use of blood from persons with polycythemia rubra vera. Many blood banks have routinely given transfusions of such blood to patients. The infusion of such blood has not been accompanied by any complications or increased incidence of reactions. Refusal to use such blood is primarily based on esthetic grounds.

IDIOPATHIC ALOPECIA

To the Editor:—*A girl, 17, complains of gradual loss of hair for a period of six months. The hair is very thin over the entire scalp. There is no obvious disease of the scalp itself. This patient's diet is adequate, and there is no history that would indicate any endocrine dysfunction. The remaining hairs appear healthy. This is not a patchy loss, as with alopecia areata. Have you any suggestions?*

M. A. Shillington, M.D., Glendive, Mont.

Answer.—From the description it would seem that this patient has mild, diffuse alopecia. A note as to the condition of the hair elsewhere on the body might have been of some help. If there is no obvious disease of the scalp, if the patient has not been ill recently, and if she manifests no evidence of systemic disease at present, she probably has idiopathic alopecia. It would also be well to know whether her father or brothers became bald prematurely. If the scalp is tight, it might be that mild, constant irritation with the following prescription would be of help; cade oil, 20%; precipitated sulfur, 10%; salicylic acid, 5%, and qualatum (petrolatum 90%, glycerol monostearate 10%), in a quantity sufficient to make 1 oz. (30 cc.). This should be applied directly to the scalp, in small amounts, and should be rubbed in vigorously. The hair should be shampooed the following day. Medication other than local is not helpful in conditions such as this.

AMENORRHEA FOLLOWING SHOCK TREATMENTS

To the Editor:—*A schizophrenic patient received seven shock treatments, after which she was discharged and permitted to return home. It is now three months since her last treatment, and she has not yet menstruated. She is 22 years old and began menstruating at 15. Her periods were always late, usually at six or eight week intervals. My patient is disturbed over the delay. I would appreciate any suggestions you may offer.*

J. S. Wagner, M.D., Glendale, N. Y.

Answer.—Kalinowsky and Hoch (Shock Treatments and Other Somatic Procedures in Psychiatry, New York, Grune and Stratton, 1946) say: "Menstruation often ceases during a long course of ECT. In these patients as well as in those in whom amenorrhea already accompanied the psychosis prior to treatment, normal function usually returns about two months after successful treatment. This is likewise true in many cases of so-called involutional psychosis at the age of between 45 and 50, when menstruation had ceased but returns. These patients who become amenorrheic only during the treatment but regain their regular cycles sometime after, demonstrate that the psychosis alone does not explain the endocrine disturbance, but that the treatment itself probably influences the diencephalic centers for these endocrine functions. It may be added that amenorrhea during ECT is not limited to psychotics alone but is seen in neurotics as well."

ABSENCE OF DUCTUS DEFERENS

To the Editor:—*A patient was told by a urologist that he has congenital absence of the ductus deferens but that a biopsy of the testicle revealed that active, viable spermatozoa were being formed. Can semen be taken from the testicle, mixed with saline and injected into his wife's uterus at the fertile time of the month, with any hope that the wife will be impregnated?*

James G. Gaume, M.D., Ellinwood, Kan.

Answer.—Semen can be taken from the testicle, mixed with saline and injected into the wife's uterus. The chances of effecting a pregnancy, however, are very small. Intracervical introduction of a mixture of semen and Ringer's solution has been found successful in a few cases. Small amounts of semen, less than 1 cc., should be used for each insemination. Great patience must be exercised, as success in these cases depends on precise synchronization with ovulation. The longevity index of spermatozoa obtained by testicular puncture and maintained in Ringer's solution is greatly diminished. If this procedure is unsuccessful, then adoption or donor artificial insemination should be considered.

SUBCUTANEOUS OXYGEN THERAPY

To the Editor:—*A 73-year-old man in severe subacute myocardial failure following two episodes of acute failure has had left bundle branch block and severe arteriosclerotic heart disease for the past 12 years. After one week in an oxygen tent with the usual therapy, his status was still critical. Another physician began subcutaneous abdominal oxygen therapy, giving 500 to 750 cc. once or twice daily. After a week of this treatment in addition to our own treatment and expert nursing care around the clock, he is still seriously ill, but not in the critical condition he was in one week ago. I cannot conceive of how this mode of oxygen therapy can be of any value, especially since he receives over 6,000 liters daily while in the tent. I would appreciate a clear-cut statement from one of your authorities.*

Irving C. Shavelson, M.D., Atlantic City, N. J.

Answer.—There is no proof of benefit from subcutaneous oxygen. Certainly, inhalation will supply very much more oxygen. Also, subcutaneous abdominal oxygen therapy is a nuisance, and it would seem preferable to omit it. This patient's improvement is doubtless due to other reasons, in particular the natural tendency of cardiac patients to improve with rest, expert nursing care, and the other therapy mentioned.

ARTHRITIC JOINTS

To the Editor:—*Is there any acceptable method of treatment to separate bone on bone pressure in chronic rheumatoid arthritis with absorption of most of the articular cartilages, e. g., in a knee joint? We understand fibers such as nylon have been tried. Would a heavy sterile oil be practical?*

Malcolm L. Raymond, M.D., Johnstown, Pa.

Answer.—Kuhns and Potter (*Annals of the Rheumatic Diseases* **10:**22 [March] 1951) reported the successful use of a nylon membrane in arthroplasty of the knee in patients with rheumatoid arthritis. The material is inert in tissue and favors the formation under the membrane of fibrous tissue resembling fibrocartilage. Another inert substance, vitallium, has proved useful in arthroplasty of the hip joint, but molds of the material applicable to the knee and other joints have not yet been developed. Injection of oil into arthritic joints was tried as far back as 1914, evidently with poor ultimate results, since the method was abandoned.

DETECTION OF INCIPIENT CANCER

To the Editor:—*Three employees in our organization present definite and proved histories of malignancy in their families, some as far back as three generations. As the chances of these employees' developing cancer are statistically high, what general measures, apart from frequent physical examinations with laboratory adjuncts, can be undertaken to detect, as early as possible, the incipiency of malignant changes in one organ or another?* *M.D., Tenn.*

Answer.—Examinations to determine whether a person has early cancer or pathologic changes that might influence malignant change have proved satisfactory in detecting early disease. If the three employees of your organization were to be checked thoroughly every six months and subjected to proctoscopic examination, cytologic studies of all body secretions, and x-ray examinations as indicated, this would be the only protection that could be given. There are no laboratory tests on the blood or urine that would give any additional information.

LYMPHATIC LEUKEMIA IN THE NEWBORN

To the Editor:—*Is acute lymphatic leukemia in a newborn infant a rare condition?*

Charles W. Shlimbaum, M.D., Bay Shore, N. Y.

Answer.—Acute leukemia or acute lymphocytic leukemia is the commoner form of leukemia seen in children. The blood findings are severe anemia, thrombopenia, and varying numbers of immature and abnormal lymphocytes, mostly lymphoblasts. Leukocytosis of from a few thousand to several thousands is encountered. The clinical appearance of the infant or child is that of pallor, asthenia, enlargement of cervical nodes, skin hemorrhages, cough, dyspnea, stomatitis, and enlargement the abdomen. The disease if untreated is fatal in a few weeks a few months; however, the use of folic acid antagonists, cortic tropin (ACTH), and cortisone has prolonged life in a sm percentage of cases. Cooke (*J.A.M.A.* **101:**432 [Aug. 5] 19 analyzed 50 cases of acute leukemia in children in a period 15 years. Onset varied from birth to 9 months of age. In th older children the ratio of males to females was 2 to 1, b in the younger age group this disproportionate incidence was n found.

THE CORONARY ARTERIES IN RHEUMATIC HEART DISEASE

To the Editor:—*In rheumatic heart diseases, are there chang in the coronary arteries sufficiently significant to result in pro nounced impairment of the coronary blood supply to t myocardium?* *Aaron N. Gorelik, M.D., Bronx, N. Y.*

Answer.—There have been several pathological reports show ing that there may occur in the coronary arteries, as in oth arterial beds, arteritides which, by pronounced intimal prolifer tion, with and without superimposed thrombosis, can produ sufficient narrowing or actual occlusion of the coronary arteri and their branches to cause impairment of the coronary circu lation. In fact, some hold that myocardial infarction, especiall in the younger age group, is often on the basis of such arteritides however, in any particular case the pathological diagnosis o the specific etiology of the arteritis seen microscopically can usually be made only by implication, since the arterial change may be the same, although the cause varies. Among the caus that have been held responsible for these lesions is rheumat arteritis.

INJECTIONS OF AMINOPHYLLINE

To the Editor:—*A white man, 29, has had bronchial asth since childhood. In the last four years he has been giv intravenous aminophylline, 3¾ grains (0.26 gm.), almost d and during a severe attack three or four times daily. He probably received over 1,000 injections of aminophyll What is the danger, if any, of continuing this thera Epinephrine gives no relief, nor does it seem that other m cations help.* *M.D., New York*

Answer.—It is unlikely that continuation of this therapy give rise to any serious ill effects. Aminophylline is nont and has, like other xanthine preparations, been given for y for its diuretic action without any evidence of toxicity ei clinically or pathologically. If injected intravenously too rapi it may lead to syncope. In persons who are hypersensitive to drug, symptoms of excessive cerebral stimulation, incl wakefulness, vomiting, and generalized convulsions, may pe Although such manifestations of hypersensitivity are gener to be expected early in the course of aminophylline ther development of hypersensitivity after protracted use is impossible and should be watched for.

EFFECT OF TEMPERATURE ON BLOOD COAGULATION

To the Editor:—*Is a correction required of the values obtai for coagulation tests at various temperatures, within the li of working conditions in an office (e. g., 16 C to 28 C)? I please quote literature or give formula.* *M.D., New Yor*

Answer.—Temperature exerts a marked influence on speed of blood coagulation. Comparative tests showed coag tion times varying from 6¾ to 8 minutes at 37 C and from 1 to 16 minutes at 22 C in normal persons, and from 25 to minutes at 37 C and from 76 to 121 minutes at 22 C in he philiacs. In the tests quoted all factors known to influence agulation were controlled. The causes of these variations are known. For these reasons there is no suitable correction form It is recommended that the test tubes be inserted in a wa bath at 37 C. Quick (Quick, A. J., Honorafo, R. C., and Stefani M.: The Value and the Limitations of the Coagulation Ti in the Study of the Hemorrhagic Diseases, George R. Mi Symposium on Hematology, New York, Grune & Stratton, 19 pp. 400-409) recommends an ordinary vacuum bottle filled w water at 37 C as a handy water bath.

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TREATMENT OF ESSENTIAL AND MALIGNANT HYPERTENSION

Irvine H. Page, M.D., Cleveland

The problem of etiology of essential and malignant hypertension remains all important because the day must come when treatment will be meshed with it, rather than follow the current practice of treating hypertension of different causes with the same remedy. Knowledge of etiology is, however, in a state of flux, as can be appreciated from recent reviews.[1] Much of what I shall say about treatment probably will be ephemeral, though it now represents the views of my associates, Drs. A. C. Corcoran and R. D. Taylor, as well as my own.

SEDATIVES AND PROPYLTHIOURACIL

Drugs such as phenobarbital or mixtures of chloral hydrate and potassium bromide are probably the most useful means of promoting daytime relaxation without too much sleepiness. We do not use sedatives as a routine although in some unusually tense patients their effect is gratifying. Excessively irritable, anxious, and difficult patients are several complaints ahead of the physician. There is nothing he can suggest that they haven't already tried, usually with dire results. In these we have had some success with propylthiouracil (200 mg. four times a day). After about a month the patients quiet down and a startling reversal of their behavior pattern may occur. We have not had enough experience with this drug, or with the more lasting effects of I^{131} as used by Herrman Blumgart, to evaluate the long-term response.

DIET

In overweight hypertensive patients the total caloric intake should be reduced, and that marks about the only area in which agreement exists. Starvation or inadequate diets lead to blood pressure reduction, but at the cost of well-being. The problem of the effect of sodium intake on blood pressure has been the most contentious of all. Allen and Sherrill [2] no doubt saw many good results years ago from salt restriction. Grollman and his associates [3] refined the treatment by more exacting requirements. But there are many who have yet found no convincing evidence in favor of such diets.[4] The problem has been reviewed so adequately,[5] that I need not do it again.

From the experimental viewpoint it is clear that hypertensive animals respond in different ways to salt deprivation. For example, the blood pressure of rats with their kidneys wrapped in silk is highly responsive to the salt content of the diet. This is in sharp contrast to dogs. The contrasts are quite as sharp among patients. Some respond very satisfactorily and others not at all. My colleagues and I have the impression that about one quarter respond satisfactorily to salt restriction.[6] In general, the percentage of claimed clinical success rises as the study of the patients becomes increasingly lax and uncritical. Without a most rigid control, to maintain a diet containing less than 200 mg. of sodium is impractical. It is doubtful that diets which provide more than 500 mg. of sodium affect arterial pressure. Congestive failure and other edemas usually require much less drastic restriction. It is the unusual patient who can follow the diet successfully out of the metabolic ward, and studies made without the most exacting control have greatly confused the field. Even under the best conditions only a minority can expect any substantial benefit. Nevertheless, this minority is not inconsiderable, and the drastic low-sodium diet, if used under close supervision, is valuable. We build the diet around a salt-free milk (lonalac®), potatoes (especially baked), oleomargarine, and sugar and are able to provide not only adequate calories but also a satisfying variety of reasonably priced foods. Salt substitutes may or may not be used according to individual taste. With a little ingenuity a good variety of foods may be prepared which are salt-free. Possibly we should call this our "potato diet." Recently an excellent "salt-free"

From the Research Division of the Cleveland Clinic Foundation, and the Frank E. Bunts Educational Institute.

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SUBCUTANEOUS OXYGEN THERAPY

To the Editor:—*A 73-year-old man in severe subacute myocardial failure following two episodes of acute failure has had left bundle branch block and severe arteriosclerotic heart disease for the past 12 years. After one week in an oxygen tent with the usual therapy, his status was still critical. Another physician began subcutaneous abdominal oxygen therapy, giving 500 to 750 cc. once or twice daily. After a week of this treatment in addition to our own treatment and expert nursing care around the clock, he is still seriously ill, but not in the critical condition he was in one week ago. I cannot conceive of how this mode of oxygen therapy can be of any value, especially since he receives over 6,000 liters daily while in the tent. I would appreciate a clear-cut statement from one of your authorities.*

Irving C. Shavelson, M.D., Atlantic City, N. J.

Answer.—There is no proof of benefit from subcutaneous oxygen. Certainly, inhalation will supply very much more oxygen. Also, subcutaneous abdominal oxygen therapy is a nuisance, and it would seem preferable to omit it. This patient's improvement is doubtless due to other reasons, in particular the natural tendency of cardiac patients to improve with rest, expert nursing care, and the other therapy mentioned.

ARTHRITIC JOINTS

To the Editor:—*Is there any acceptable method of treatment to separate bone on bone pressure in chronic rheumatoid arthritis with absorption of most of the articular cartilages, e. g., in a knee joint? We understand fibers such as nylon have been tried. Would a heavy sterile oil be practical?*

Malcolm L. Raymond, M.D., Johnstown, Pa.

Answer.—Kuhns and Potter (*Annals of the Rheumatic Diseases* **10**:22 [March] 1951) reported the successful use of a nylon membrane in arthroplasty of the knee in patients with rheumatoid arthritis. The material is inert in tissue and favors the formation under the membrane of fibrous tissue resembling fibrocartilage. Another inert substance, vitallium, has proved useful in arthroplasty of the hip joint, but molds of the material applicable to the knee and other joints have not yet been developed. Injection of oil into arthritic joints was tried as far back as 1914, evidently with poor ultimate results, since the method was abandoned.

DETECTION OF INCIPIENT CANCER

To the Editor:—*Three employees in our organization present definite and proved histories of malignancy in their families, some as far back as three generations. As the chances of these employees' developing cancer are statistically high, what general measures, apart from frequent physical examinations with laboratory adjuncts, can be undertaken to detect, as early as possible, the incipiency of malignant changes in one organ or another?*

M.D., Tenn.

Answer.—Examinations to determine whether a person has early cancer or pathologic changes that might influence malignant change have proved satisfactory in detecting early disease. If the three employees of your organization were to be checked thoroughly every six months and subjected to proctoscopic examination, cytologic studies of all body secretions, and x-ray examinations as indicated, this would be the only protection that could be given. There are no laboratory tests on the blood or urine that would give any additional information.

LYMPHATIC LEUKEMIA IN THE NEWBORN

To the Editor:—*Is acute lymphatic leukemia in a newborn infant a rare condition?*

Charles W. Shlimbaum, M.D., Bay Shore, N. Y.

Answer.—Acute leukemia or acute lymphocytic leukemia is the commoner form of leukemia seen in children. The blood findings are severe anemia, thrombopenia, and varying numbers of immature and abnormal lymphocytes, mostly lymphoblasts. Leukocytosis of from a few thousand to several thousands is encountered. The clinical appearance of the infant or child is that of pallor, asthenia, enlargement of cervical nodes, skin hemorrhages, cough, dyspnea, stomatitis, and enlargement the abdomen. The disease if untreated is fatal in a few weeks a few months; however, the use of folic acid antagonists, corticotropin (ACTH), and cortisone has prolonged life in a small percentage of cases. Cooke (*J.A.M.A.* **101**:432 [Aug. 5] 19 analyzed 50 cases of acute leukemia in children in a period 15 years. Onset varied from birth to 9 months of age. In the older children the ratio of males to females was 2 to 1, but in the younger age group this disproportionate incidence was found.

THE CORONARY ARTERIES IN RHEUMATIC HEART DISEASE

To the Editor:—*In rheumatic heart diseases, are there changes in the coronary arteries sufficiently significant to result in pronounced impairment of the coronary blood supply to the myocardium?*

Aaron N. Gorelik, M.D., Bronx, N. Y.

Answer.—There have been several pathological reports showing that there may occur in the coronary arteries, as in other arterial beds, arteritides which, by pronounced intimal proliferation, with and without superimposed thrombosis, can produce sufficient narrowing or actual occlusion of the coronary arteries and their branches to cause impairment of the coronary circulation. In fact, some hold that myocardial infarction, especially in the younger age group, is often on the basis of such arteritides; however, in any particular case the pathological diagnosis of the specific etiology of the arteritis seen microscopically can usually be made only by implication, since the arterial changes may be the same, although the cause varies. Among the causes that have been held responsible for these lesions is rheumatic arteritis.

INJECTIONS OF AMINOPHYLLINE

To the Editor:—*A white man, 29, has had bronchial asthma since childhood. In the last four years he has been given intravenous aminophylline, 3¾ grains (0.26 gm.), almost daily and during a severe attack three or four times daily. He has probably received over 1,000 injections of aminophylline. What is the danger, if any, of continuing this therapy? Epinephrine gives no relief, nor does it seem that other medications help.*

M.D., New York.

Answer.—It is unlikely that continuation of this therapy will give rise to any serious ill effects. Aminophylline is nontoxic and has, like other xanthine preparations, been given for years for its diuretic action without any evidence of toxicity either clinically or pathologically. If injected intravenously too rapidly it may lead to syncope. In persons who are hypersensitive to the drug, symptoms of excessive cerebral stimulation, including wakefulness, vomiting, and generalized convulsions, may occur. Although such manifestations of hypersensitivity are generally to be expected early in the course of aminophylline therapy, development of hypersensitivity after protracted use is not impossible and should be watched for.

EFFECT OF TEMPERATURE ON BLOOD COAGULATION

To the Editor:—*Is a correction required of the values obtained for coagulation tests at various temperatures, within the limits of working conditions in an office (e. g., 16 C to 28 C)? If so, please quote literature or give formula.* *M.D., New York.*

Answer.—Temperature exerts a marked influence on the speed of blood coagulation. Comparative tests showed coagulation times varying from 6¾ to 8 minutes at 37 C and from 1 to 16 minutes at 22 C in normal persons, and from 25 to minutes at 37 C and from 76 to 121 minutes at 22 C in hemophiliacs. In the tests quoted all factors known to influence coagulation were controlled. The causes of these variations are not known. For these reasons there is no suitable correction formula. It is recommended that the test tubes be inserted in a water bath at 37 C. Quick (Quick, A. J., Honorato, R. C., and Stefanini, M.: The Value and the Limitations of the Coagulation Time in the Study of the Hemorrhagic Diseases, George R. Minot Symposium on Hematology, New York, Grune & Stratton, 19 pp. 400-409) recommends an ordinary vacuum bottle filled with water at 37 C as a handy water bath.

For this reason, their prognostic value is low and often misleading both to patient and physician.

To those of us who have studied the problem for years, it is becoming more and more certain that the cholesterol level rises in some persons as they get older and not in others. It may be that the more free a person is from vascular or other disease, the less likely there will be a rise in cholesterol with age. But which is cart and which is horse?

The ultracentrifugal studies initiated by Gofman have possibilities in delineating the problem that may be more promising than simple chemical analysis. This remains to be proved. Whatever the final interpretation given this work, Gofman has made an important contribution toward stimulating investigation and understanding of atherosclerosis.

I will add a word of warning about interpretation of blood cholesterol figures and ultracentrifuge analysis. Evidence to date merely indicates that in some patients with atherosclerosis or coronary disease, cholesterol or S_f 10-20 molecules may be slightly elevated (S stands for Svedberg units [one S equals 10^{-3} cm./sec./dyne/gm.] and the subscript f stands for *flotation* [negative sedimentation]). Statistically they may be significantly above normal. But in the interpretation of individual values they may be completely misleading and do much harm. The range of normal variation for serum cholesterol can be as much as 100 mg. per 100 cc. Thus, with a mean of, say, 224, it could be 324 or 124 and yet be normal.

Statistically, slight hypercholesterolemia may prove of interest to science, but for individual patients it proves nothing as to the occurrence or development of arteriosclerosis. Insurance companies can prove statistically that obesity shortens life, but the tables can tell nothing about the longevity of the individual.

For reasons such as these, I warn you against the indiscriminate use of the measurements of S_f 10-20 molecules, cholesterol, or anything else to indicate the nature or advance of arterial disease. I have no doubt that we are grossly oversimplifying the problem of both the etiology and treatment of arteriosclerosis. Lest we do more harm than good, let us refrain from drawing hasty conclusions. Nature has a way of striking back at those who too grossly touch on her guarded secrets.

Before we get too afraid of cholesterol in our diets, an example of the results of studies done with Dr. Lena Lewis should be considered.

A hypertensive arteriosclerotic patient studied in the Cleveland Clinic Hospital for over a year had suffered a stroke and his fundal vessels were markedly sclerotic. In short, he might have been expected to have hypercholesterolemia and a high content of the S_f 10-20 plasma lipoprotein. Actually on a drastic low-sodium diet containing 0.8 gm. of cholesterol the total serum cholesterol was normal as were the molecules of the S_f 10-20 class. He was then placed on a diet containing about 4 gm. of cholesterol, and a supplementary 10 gm. was given as well. Animal fats were abundant. He remained on it a month. No change occurred in either cholesterol or molecules of the S_f 10-20 class. Then 125 gm. of oleomargarine was added to the high cholesterol regimen. Although such a diet is hard to swallow, he valiantly followed it for two months with still no change. Thus, even with highly abnormal increases in both fat and cholesterol in an arteriosclerotic hypertensive patient, no significant change in these blood constituents occurred.

TABLE 1.—*Effect of Diet Change on an Arteriosclerotic Hypertensive Patient*

Date	S_f 10-20 Mg.	Total Cholesterol	Diet	Started	Stopped
3/14/50	18	...	Lonalac® low salt	10/16/48	12/30/50
4/15/50	28	178	....	....	....
9/ 8/50	16	...	....	....	....
9/15/50	<10	...	....	....	....
9/29/50	12	...	....	....	....
10/23/50	<10	...	....	....	....
11/21/50	22	198	....	....	....
12/14/50	10	236	....	....	....
12/20/50	20	...	....	....	....
12/27/50	26	...	High cholesterol	12/31/50	1/25/51
1/ 2/51	20	...	....	....	....
1/11/51	18	167	....	....	....
1/15/51	14	...	....	....	....
1/17/51	<10	...	....	....	....
1/25/51	18	...	High cholesterol + 125 gm. Oleo.	1/25/51	3/25/51
2/ 1/51	<10	210	Lonalac® low salt	3/26/51	....
2/ 8/51	20	...	....	....	....
2/15/51	16	...	....	....	....
2/22/51	16	...	....	....	....
3/16/51	16	...	....	....	....
3/29/51	24	...	....	....	....
4/13/51	30	...	....	....	....
4/18/51	28	...	....	....	....

This must be contrasted with patients in whom the response to changes in cholesterol and fat feeding and withdrawal are sometimes quite large. An example from our study concerns a woman, 27 years of age, with malignant hypertension and chronic cardiac failure. She was almost constantly in the hospital under careful dietary supervision. A diet containing an overwhelming amount of cholesterol (4 gm. in the diet plus 10 gm. in capsules) and also rich in animal fat in a period of weeks elevated the S_f 10-20 molecules from 66 to 106 mg. Total and free cholesterol did not rise correspondingly. She was then put on a diet low in cholesterol (0.3 gm.) and high in vegetable fat. Eleven days later the S_f 10-20 molecules had fallen back to the original level of

68 mg. and there was a further slow but progressive fall without a corresponding reduction in cholesterol. A shift to a low-cholesterol, low-fat diet did not accelerate the fall. On a diet unrestricted in lipid but low in salt the S_f 10-20 fraction continued slightly downward, but by this time the patient was losing weight and not far from death.

These results show that a diet excessively high in cholesterol and animal fat in a hypertensive patient with an already elevated S_f 10-20 fraction may further elevate it. Substitution of a low-cholesterol, high-vegetable-fat diet was associated with a marked fall which was not further enhanced by making the diet low in fat as well. Neither total serum nor free cholesterol nor lipid phosphorus reflected these changes as did the S_f 10-20 fraction.

Thus, whether vegetable fat as well as cholesterol and animal fat should be reduced in the diet is still undecided. Some evidence suggests that blood cholesterol is responsive only to diets which are virtually free of fat and cholesterol. My personal experience with this regimen was not a happy one. I lost weight, experienced digestive disturbances, and looked at the world with a jaundiced eye. With better dietary planning it would have been possible to maintain weight and still keep the diet cholesterol-poor. Whether that would have been advantageous, I do not know. The best advice I can give at the moment is to wait until investigators have arrived at solid conclusions before recommending wide changes in your patient's diet.

TABLE 2.—*Effect of Change in Cholesterol and Vegetable Fat in a Patient with Malignant Hypertension*

Date	S_f 10-20 Mg.	Total Cholesterol	Free Cholesterol	Lipid Phosphorus	Diet	Started	Stopped
5/11/50	36	256	42	10.0	Cardiac low salt	5/ 8/50	5/30/50
6/ 6/50	66	231	49	9.2	Cholesterol free, low salt	5/31/50	6/ 8/50
6/11/50	68	...	..	....	High vegetable fat, low cholesterol	6/ 8/50	6/18/50
6/21/50	66	234	53	9.4	High vegetable fat, high cholesterol	6/19/50	6/29/50
7/ 7/50	..	260	50	10.0	Low salt	6/29/50	7/ 7/50
7/11/50	106	247	60	10.6	High cholesterol + 10 gm. cholesterol	7/ 8/50	7/13/50
7/14/50	102	254	62	11.7	Low cholesterol, high vegetable fat	7/14/50	8/ 1/50
7/18/50	90	223	55	9.9	....	....	....
7/22/50	96	255	57	10.2	....	....	....
7/25/50	68	242	50	8.6	....	....	....
7/28/50	68	230	47	8.6	....	....	....
8/ 1/50	40	236	60	8.5	....	....	....
8/ 4/50	70	213	46	9.6	Low cholesterol, low fat	8/ 2/50	8/ 8/50
8/ 8/50	52	201	46	10.0	....	....	....
8/29/50	24	297	..	....	Low salt	8/ 9/50	9/23/50
9/ 8/50	36	280	..	....	Unrestricted	9/24/50	1/11/51
9/15/50	44	...	..	....	....	....	....
1/12/51	48	245	..	....	Low salt	1/12/51	2/ 7/51
1/18/51	60	...	..	....	....	....	....
1/25/51	24	...	..	....	....	....	....
2/ 1/51	20	210	..	....	....	....	....

* Died in cardiac failure.

SURGERY

Seventeen years ago treatment of hypertension was undertaken by some bold surgeons, especially Adson, Heuer, Peet, Smithwick, and Grimson, to mention only the pioneers. Thousands of patients have since been operated on. The accumulated data confirm a pattern that was perceptible almost from the first: there are a few brilliant successes, some patients are definitely benefited, and some not at all. The ratio of response hasn't changed much over the years, as E. V. Allen has so judiciously pointed out.

Most are agreed that Smithwick's lumbodorsal ganglionectomy currently is generally the best and most practical type of operation. The complete sympathectomy of Grimson may yet find its place, but it is at present more experimental. We know no way to predict which patient will benefit or in what degree. To the common-sense rules the only exceptions are that patients with malignant hypertension, as we originally found,[10] much to our surprise, often do well, and that the same is true in patients with hypertensive heart disease and, paradoxically, with renal hypertension. Unfortunately success can not be counted on. We resort to sympathectomy when over a period of months or years the progress blood vessel disease is objectively demonstrable a medical management has either failed or proved i practical.

The future of sympathectomy depends on findi some reliable and objective method for the selection patients. If the many useless operations could be avoi and operations performed only when good results can assured, sympathectomy might have a permanent pl in treatment. Our own current practice is to determine direct recording of blood pressure the patients' respo pattern to substances such as tetraethylammoni chloride, which block nervous transmission at autono ganglia. McCubbin and I[11] have been able to establis characteristic pattern in dogs with chronic neuroge hypertension. Similar responses occur in some patien We hope this approach may yield a more rational meth of selection.

TOTAL ADRENALECTOMY

With the advent of adequate supplies of adrenal c tical hormones, it has been possible to do what had lo seemed desirable as a result of experiments on hype tensive animals. Total adrenalectomy in dogs with renal hypertension results in a fall of arterial pressure to normal. This was a striking observation. Administration of relatively small amounts of cortical steroids restored the original hypertensive levels. Clearly, the adrenal cortex plays a decisive role in maintainance of arterial pressure. Even before the experimental contributions, DeCourcy, Crile, and others had foreshadowed some of these modern developments and performed adrenal denervations and partial adrenalectomy. Current experimental adrenalectomy in patients is born of the confidence that adequate supplies of adrenal hormones are available. Green, Nelson, Dodds, and Smalley [12] published the report of the first case of total adrenalectomy adequately treated, and subsequently several groups have undertaken study of the problem.

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[10] Page, I. H., and Heuer, G. J.: Treatment of Essential and Malignant Hypertension by Section of Anterior Nerve Roots, Arch. Int. Med. **59:** 245 (Feb.) 1937.

[11] Page, I. H., and McCubbin, J.: The Pattern of Vascular Reactivity in Experimental Hypertension of Varied Origin, Circulation **4:** 70 (July) 1951.

No evaluation of the results of operation is yet possible, but many things of interest have already been noted. Blood pressure has fallen to normal in a few cases. Recently we had a striking example of a patient with moderately malignant hypertension in whom blood pressure did not fall, indeed rose somewhat, after total adrenalectomy. On the whole, the clinical condition of the patients in whom arterial pressure falls seems improved. Experience indicates that it is useless to operate on patients who are severely nephrosclerotic and azotemic. Just as with pyrogen therapy, there is some relationship between therapeutic effectiveness and adequate renal function. It is important to realize that there is much drama in this operation but many patients do not respond and it would be surprising if they did. Subtotal adrenalectomy appeals to me no more today than it did a decade or more ago.

Total adrenalectomy is purely experimental and should not be done at present with any other aim than further study and then only when the patient can continue under close clinical and laboratory control. He must be intelligent enough to regulate his own adrenal cortical therapy. My experience does not lead me to believe that this operation will ever be widespread as a treatment of hypertension.

DRUGS

Potassium Thiocyanate.—This drug has, in my opinion, one sovereign use: the control of intractable hypertensive headache. It may be given by vein to start with and orally thereafter as used by E. A. Hines. Headache, which has been present for months, often disappears immediately and does not return as long as the thiocyanate level of the blood is kept at from 3 to 6 mg. per 100 cc. The drug has a moderate sedative effect, which accounts for the fact that blood pressure sometimes falls significantly. Its toxic effects have been overemphasized, and are due in most cases to failure of control of the blood level. It must never be used except when the blood levels can be controlled.

Blocking Agents.—Drugs such as tetraethylammonium chloride and pentamethonium iodide (pentamethylenebis [trimethylammonium iodide]) act chiefly by blocking nervous impulses at the autonomic ganglia. Theoretically, they should abolish the sympathetic vasoconstrictor component of vasoconstriction and effect a chemical sympathectomy. Actually, the action of these drugs is much more complicated than this. Chemical sympathectomy certainly occurs, but it is far from complete. To effect adequate blockade, much larger doses are usually required than can be given with comfort or safety, and blockade does not last for more than a few hours. Thus the early hope for tetraethylammonium chloride proved illusory; it has, however, proved to be an extraordinarily interesting drug.

The penta- and hexamethonium salts are considerably more useful.[13] They are easier to handle either given subcutaneously or by mouth, but tolerance to them often develops. Both tetraethylammonium chloride and pentamethonium have several undesirable side reactions, notably interference with gastric motility, constipation, loss of ocular accomodation, dry mouth, and postural hypotension. There is marked individual susceptibility, the minimum dose of pentamethonium required to produce a fall of 40 to 50 mm. Hg. systolic pressure varying from 5 to 150 mg. subcutaneously. Hexamethonium is given by mouth in small doses progressively increased up to 500 mg. from 4 to 6 times a day. Patients on a salt-free diet are believed to be especially sensitive to the drug. Combinations of blocking agents with other hypotensive agents such as 1-hydrazinophthalazine, nitroprusside, or low-salt diets may improve their therapeutic usefulness, but until we know more about their individual action it is probably better to use them singly before combining them in a patient.

Smirk [14] starts treatment with a subcutaneous dose of 15 or 20 mg. three times a day. Each dose may need to be increased by 5 or 10 mg. daily until the desired fall in blood pressure is achieved. After several weeks the dose may have risen to 200 or 250 mg., but then no further increase is usually needed. The effect of the injection should be evaluated about 40 minutes after it was given, with the patient in the sitting posture. These drugs are the way-stations on the long road to adequate chemical sympathectomy.

Substances such as the benzodioxanes which block or reverse the action of epinephrine and norepinephrine at the receptors within the vascular muscle have not proved useful in patients except as a means of recognizing pheochrome tumors. The fascinating chapter concerned with the search for the nature and treatment of these rare tumors must be omitted here because there is no evidence, so far, to suggest that essential hypertension is due to an excess of epinephrine or norepinephrine.

The early promise of dibenamine® (N,N-dibenzyl-beta-chloroethylamine) and its derivatives has not been fulfilled. The action of the benzodioxanes is too transient. 'Regitine" (2-[N-p-tolyl-N-(*m*-hydroxyphenyl)-aminomethyl]-imidazoline hydrochloride) while a rather more effective blocking agent and longer lasting, has not

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12. Green, D. M., and others: Bilateral Adrenalectomy in Malignant Hypertension and Diabetes, J. A. M. A. **144**: 439 (Oct. 7) 1950.

13. Paton, W. D. M., and Zaimis, E. J.: The Properties of Polymethylene Bistrimethylammonium Salts, J. Physiol. **108**: 55P, 1949. Arnold, P.; Goetz, R. H., and Rosenheim, M. L.: Effect of Pentamethonium Iodide on the Peripheral Circulation, Lancet **2**: 408, 1949. Grob, D., and Harvey, A. M.: Observations on the Effects of the *Autonomic Blocking* Agent, Bis-Trimethylammonium Pentane Dibromide (C5) in Normal Subjects and in Patients with Peripheral Vascular Disease and Hypertension, and Comparison with Tetraethylammonium Chloride, Bull. Johns Hopkins Hosp. **87**: 616, 1950. Campbell, A., and Robertson, E.: Treatment of Severe Hypertension with Hexamethonium Bromide, Brit. M. J. **2**: 804, 1950.

14. Smirk, F. H.: Practical Details of the Methonium Treatment of High Blood Pressure, New Zealand M. J. **49**: 637, 1950.

so far been useful in treating hypertensive patients. It has been of value in controlling paroxysms of hypertension during operations for pheochromocytoma, as shown by Keith Grimson. Best results with blocking agents will be obtained in patients in whom it can be objectively demonstrated that the neurally mediated component of the vasoconstriction is an important one. A discussion of this would, however, take us far afield.

Veratrum Alkaloids.—These drugs are now available in large quantities and in purified form. In the past two years extensive clinical trial has been given these drugs, notably by Krayer, Wilkins, Fries, and others.

The results leave much to be desired. Reduction of average blood pressure of 20 mm. or more systolic occurred in about 15% of our patients. In a few almost normal pressures were reached. The majority were not markedly benefited. This may be due to the fact that the dose eliciting the hypotensive effect of the drug is so close to the toxic one. Vomiting, burning, and constriction of the throat, produced even when the drug is given by rectum, limits the dose. A few of our patients have become partially refractory to the drug after taking it for several months.

Blood pressure may be lowered acutely by giving protoveratrine or "veriloid" intravenously, but this does not have much practical use in the management of most patients. We have not been convinced yet that any of the single alkaloids so far separated are greatly superior to the mixtures. Thus, our current opinion is that veratrum alkaloid mixtures have a usefulness limited to those few patients who respond. The only way to pick these is by trial and error. This is another group of drugs moderately useful in the right patients.

Sodium Nitroprusside.—This drug has been used for wo years in the Research Division of the Cleveland Clinic and will be the subject of a complete report shortly with Drs. Corcoran, Taylor, Bumpus, and Koppanyi. In animals its intravenous injection in minute quantities produces a profound fall in arterial pressure and renal vasodilatation. The fall is not dependent on the nervous system. Nitroprusside does not produce refractoriness or tachyphylaxis in either acute or chronic experiments. So far our results show that the whole ion is necessary for the hypotensive action of the chemical, but over a period of time much of it is converted to thiocyanate and may be determined as such in the blood.

We give initially 30 mg. four times a day of the drug by mouth in capsules, and increase the dose, following the thiocyanate blood level. At present, levels of 12 to a maximum of 20 mg. per 100 cc. of serum seem most satisfactory. At these levels the patients are for the most part without symptoms and significant falls in pressure may be expected. However, the long-term effects of such concentrations have yet to be established and must be viewed with some reserve since it has been repeatedly shown that thiocyanate intoxication often occurs at these levels. We have not seen any tendency in the patients to become tolerant to the drug. If the dose is too high, the patients sleep much of the time, are drowsy, and have poor appetites, and a thiocyanate rash may appear and slight anemia may develop. Mental confusion occurs, especially in patients who show at the outset evidences of deficient cerebral circulation.

Thus nitroprusside cannot be used without control. Our experience suggests that it has some of the properties of thiocyanate, but in addition seems to have a more impressive hypotensive effect though this is as yet unproved. As a hypotensive drug it has the great advantage of being cheap.

In some patients intramuscular crude liver extract and/or vitamin B complex may protect against some of the side-effects. This is still a clinical impression but conviction in it is growing.

We believe it not improbable that part of the hypotensive effect is due to suppresion of the zona glomerulosa of the adrenal cortex. Last year Masson, Corcoran, and I [15] presented evidence implicating this zone of the adrenal glands in the genetic mechanism of some types of hypertension. Recently Davis, Tanturi, and Tarkington [16] demonstrated in dogs, rats, and human beings that thiocyanate causes marked atrophy of the glomerulosal zone.

The whole nitroprusside ion is required for the immediate fall of blood pressure elicited by its intravenous infusion. Thus acute episodes of hypertension may be combated. But the chronic fall in blood pressure seems more dependent on the thiocyanate level of the blood. The patients who received nitroprusside for long periods of time and exhibited marked fall in arterial pressure showed much the same fall when thiocyanate was given by mouth and comparable blood levels reached. In experimental renal hypertensive dogs arterial pressure falls after large doses of nitroprusside and much less so in hypertension of neurogenic origin. It is much more difficult to raise the thiocyanate level of dogs than of man.

1-Hydrazinophthalazine.—Intravenous administration of this substance to cats and rabbits was shown by Gross, Druey, and Meier [17] to lower blood pressure. Renal vasodilatation often results in both man and animals according to Reubi.[18] He also found that, after doses of 10 to 20 mg. intravenously, arterial pressure was either reduced or unchanged in three patients with essential hypertension. Of four patients, two exhibited increased renal blood flow and peripheral perfusion, one increased renal blood flow, and one increased peripheral perfusion only.[19] Thus, renal vasodilatation in patients and fall in arterial pressure were irregular.

Grimson and Chittum [20] showed that the drug lowers arterial pressure in dogs with chronic experimental neurogenic hypertension, but that chronic treatment of patients with hypertension effected no persistent reduction of blood pressure. Chronic oral administration in the hands of Moyer and Handley [21] also was not effective and tolerance apparently developed. Nausea was noted in six patients, vomiting in two, and afebrile reaction with eosinophilia in one. Schroeder [22] has recently had encouraging results with this drug in "neurogenic" hypertensive patients with no effect in renal hypertensive patients. Fries and Finnerty [23] suggest that in man 1-hydrazinophthalazine inhibits sympathetic vasoconstrictor reflexes.

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[17] Gross, F.; Druey, J., and Meier, R.: Eine neue Gruppe blutdrucksenkender Substanzen von besonderen Wirkungscharakter, Experientia **6:** 19, 1950.

[18] Reubi, F.: Influence de quelques vasodilatateurs périphériques sur le flux sanguin rénal, Helvet. med. acta **16:** 297, 1949; Renal Hyperemia Induced in Man by a New Phthalazine Derivative, Proc. Soc. Exper. Biol. & Med. **73:** 102, 1950.

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[20] Grimson, K. S., and Chittum, J. R.: Effectiveness of Several Adrenolytic, Sympatholytic or Ganglionic Blocking Drugs Against Acute and Chronic Neurogenic Hypertension, Proc. South. Soc. Clin. Res., abstracted, Am. J. Med. **7:** 251, 1949. Grimson, K. S.; Chittum, J. R., and Metcalf, B. H.: Action of 1-Hydrazino Phthalazine (C-5968) on Vasomotor Reflexes and Hypertension in Dogs and Man, Federation Proc. **9:** 279, 1950.

Our interest in this substance was stimulated by the demonstration that it could block the action of a pressor substance liberated from the brain as a result of afferent stimulation. My associates and I [24] found that its action seemed enhanced by tetraethylammonium chloride and was abolished by 1-hydrazinophthalazine. Since the action of serotonin—probably a 5-hydroxytryptamine—is also partially inhibited by this drug, there might be some relation between the humoral vasoconstrictor of cerebral origin and the hydroxytryptamines. Tryptamine itself is also almost wholly reversed from pressor to depressor. Phthalazine is ineffective in suppressing the actions of epinephrine, norepinephrine, beta-hypophamine (pitressin®), barium chloride, acetylcholine, renin, and angiotonin.

Given intramuscularly in a dose of 2 mg. per kilogram of body weight, 1-hydrazinophthalazine regularly lowers pressure of both neurogenic and renal hypertensive dogs to normal levels for periods averaging from four to six hours, tending to be more prolonged in the neurogenic hypertensive animals. The fall in blood pressure is much less sharp and deep in normal and renal hypertensive animals than in the neurogenic hypertensive when given intravenously. The fact that the fall occurs only after a latent period, and then only slowly, suggests the conversion into some other active substance within the body.

Our experience with this drug was encouraging with a group of hospitalized patients with malignant hypertension and those with essential hypertension treated as outpatients. Of 70 patients, 5 were unable to take the drug. Thirty-three had a fall of 20 or more mm. Hg diastolic pressure, 14 equivocal fall, and 17 had none. In some patients, blood pressure fell to normal, but this was not usual. The dose ranged from 100 mg. to 1.4 gm. daily. Good responses have eventually occurred in patients who had no lowering of pressure during the first 10 days of treatment. The malignant syndrome has been clearly reversed in several patients, much to our surprise.

Marked orthostasis appears promptly after starting administration of the drug and precedes by some time fall in the average lying blood pressure. Headache ocurred initially in 42% of the patients who took the drug nd disappeared spontaneously in 70%. Nausea apeared in 18%, and vomiting in 12%. These may usually overcome by decreasing the dosage, but diphenhydrane given simultaneously has provided more prompt ief. Diphenhydramine may, however, interfere with hypotensive effectiveness of the drug.

MIXED TREATMENTS

For therapeutic purposes alone we favor mixed treatent of hypertension; low-salt diet with hexamethonium, drazinophthalazine plus hexamethonium, nitroprusle plus sympathectomy, and so on. The understanding and rational use of a variety of drugs attacking the disease at multiple points could be more effective than the exclusive use of one drug. I would point out, however, the necessity of most careful evaluation of the individual drugs before combinations are created. Perhaps the most dismal period in commercial drug promotion is that in which one new ingredient after another is added as competition increases and sales fall off.

In practice, it would seem wise to start with one measure at a time, adding on others as needed. At last the physician has a group of remedies from which to choose.

URINARY INFECTIONS

It may seem gratuitous to mention the importance of rigid control of urinary infections, but with antibiotics the results are so good that it is a pity to allow infections to progress to the point of irreparable renal damage. We have been repeatedly impressed by the fact that the mere control of renal infection greatly benefits the patient and reduces his blood pressure. The syndrome of malignant hypertension has even reversed itself. Though this is rare, its occurrence dramatically illustrates the part infected renal tissue may play in the genesis of hypertension.

We believe that cystitis and other forms of urinary infections should be vigorously treated. This may be especially desirable in young women and may prevent renal hypertension from developing later in life. Abacterial pyuria is probably an indication for treatment with the newer antibiotics.

It is difficult to diagnose chronic pyelonephritis, especially when it is not very active. We used repeated urine cultures, the urine red and white blood cell count in the Addis test, and retrograde and intravenous pyelography. Unfortunately, the pattern in pyelonephritis associated with hypertension is almost the same as that in established essential hypertension.[25] Except as they indicate how advanced the process is in destroying renal tissue, functional tests do not aid in diagnosis.

TREATMENT OF MALIGNANT HYPERTENSION

The treatment of the malignant phase of essential hypertension offers a peculiarly elusive problem because within a few weeks or months the disease may progress from a stage which might have been reversible to one surely terminal. Resolute and prompt decisions are vital. But treatment should not be undertaken until the diagnosis and the rate of progress have been determined.

For practical purposes we use the changes in the eyegrounds, the changing functions of the heart, the Addis tests, and the iodopyracet (diodrast®) or paraaminohippurate clearance, and the maximum tubular excretory capacity as criteria for determining the extent, degree, and rate of change of the vascular disease.

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If the disease has not progressed too far, and this is a matter that I have discussed elsewhere,[25a] four choices are open for treatment. The first is diet, drastic low-sodium diet (potato, low-sodium milk, salt-free oleomargarine) or rice. This is the simplest, but it may be remembered that only about one-quarter of the patients with essential hypertension respond to low-salt diets, and many of these patients respond too slowly to reverse a rapidly progressive malignant syndrome. Since there is no way short of trial to pick the "salt responder," six weeks or several months of precious time may have been lost and with them the possibility of other therapeutic trials. But when the vascular disease is not advancing rapidly, diet should be tried with reasonable anticipation of some success. The daily sodium content of the diet should be 200 mg. or less; if there is azotemia, it should also be low in protein.

The second possibility is lumbodorsal sympathectomy. The late Dr. George Heuer and I found in 1934, before indications and contraindications had been suggested for sympathectomy, that the malignant syndrome not infrequently regressed or disappeared after sympathectomy. The good results lasted from several months to five years, but after that all of the group were dead. We concluded then that sympathectomy was the best, because it was the only treatment for the condition at that time. However, at present, we limit its use in malignant hypertension to young patients very early in the disease if it is to be done at all.

The third choice is pyrogen therapy. Our use of pyrogen began a number of years ago with the injection of kidney extracts. These extracts were sometimes very effective in the treatment of malignant hypertension. The uestion arose as to whether the results obtained were used by some specific hypotensive substance in the extract or by the pyrogenic actions elicited by its injection. With Taylor and Corcoran,[26] it was possible to show that planned treatment with a variety of pyrogens definitely reversed the hemorrhagic arteriolitis in many patients with malignant hypertension. This is an important offshoot of our work on kidney extract. In my opinion, not all of the results of kidney extract are explicable on this basis. While this view is not shared by others, there are effects from these extracts which do not seem caused by pyrogen alone. Only further work can decide this.

We employ a soluble bacterial pyrogen (pyromen®-[Baxter]) and give it as an infusion in 200 cc. of saline in sufficient amounts to raise the temperature daily to 101 or 102 F. Thereafter, the amount given is determined by the temperature response of the previous day. Tolerance to the pyrogen unfortunately often develops, and after several weeks very large amounts of it may be necessary. If the amount required becomes unreasonable, then a rest period of three to five days is given and treatment again resumed at a quarter of the last dose. In other patients a dose range which consistently gives a good response may be found and, more important, it does not vary from day to day or month to month. The details of treatment have been given elsewhere.[26] If necessary, patients reactions to the pyrogen may be lessened by preliminary intravenous injections of amobarbital (0.2 gm.) and mephenesin (tolserol®) (0.5 gm.) given into the tubing of the infusion set. Unless very dilute, mephenesin will cause thrombosis of the veins.

About the only necessary criterion for selection is that renal function not be excessively low (not less than 50% of normal urea clearance; the maximum tubular excretory capacity using paraaminohippurate was 30 mg. or more; maximum ability to concentrate urine to a specific gravity 1:020 or greater). If renal function is severely impaired, the effect only subjects the patient unnecessary discomfort. The benefit will be transient least, or the progress to uremia somewhat slowed.

A few things about this treatment need emphasis. is a harsh treatment, but malignant hypertension is mo than harsh—it is lethal. Treatment is given six days the week and must be prolonged until the patient r ceives no further benefit. This usually means three four months.

The fact that most patients believe malignant hype tension is a relatively insignificant episode which shou be curable in a week or so is deplorable. They seem u able to grasp its dangers, hence are unwilling to make t sacrifices they would gladly make were they victims cancer or tuberculosis. It is well, therefore, to outli carefully the situation with the patient before treatm is undertaken. Our greatest tragedies have been in p sons who have improved greatly, then broken off tre ment in the middle only to relapse into a state in wh treatment could not be resumed. Realization comes late.

The results have in many cases been impressi Within several weeks the eyegrounds will have clear Blood pressure falls, but this may be much slower tl the improvement of the eyegrounds. Heart size may a diminish and renal function improve.

After discontinuing treatment, arterial pressure r rise almost to its pretreatment level; but, now, a several years, the malignant syndrome has not retur to our patients.

Comparing the results we have obtained with s pathectomy over a period of 17 years and with die management for six years, it is my current opinion pyrogen is the treatment of choice. Let me empha that malignant hypertension is for the most part a dangerous disease, and in its management one must and act quickly and resolutely. Treatment should continued until a result of one sort or another is cert Malignant hypertension is like a grass fire in a wind.

SUMMARY

Current treatment of essential and malignant hy tension has been briefly reviewed. The results justify hope that these diseases may eventually be curable that even today much can be done for their victims. only by the use of every reasonable weapon, diagno and therapeutic, that good results may be expected management of this multifaceted disease.

2020 East 93rd St.

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MANPOWER PROSPECTS WITHIN THE POPULATION STRUCTURE

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With the role of world leadership thrust on the United States, it is academic to ask whether we shall employ older people in industry. The practical question is: What are the manpower prospects within the population structure and how can we most intelligently utilize our limited human resources? Whether the war be cold or hot, increasing civil needs, the Point Four Program, and rearming the free peoples of the world are placing and will continue to place a prodigious demand on our production capacity. Any one would be sufficient to strain our foreseeable resources; the three in combination will require that we employ all manpower available, young and old, and that we use it more intelligently than in the past.

Five basic factors are at play tending to restrict manpower resources:

1. The population of the United States has reached a transition point in growth and is rounding off to a saturation level.

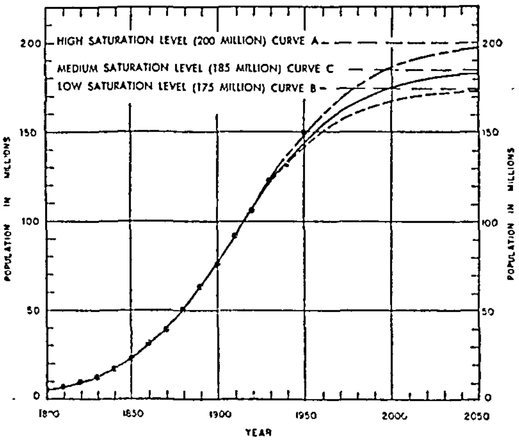

Fig. 1.—Logistic population growth of the United States from 1800 to 2050.

2. Part of our population growth is resulting from increased longevity rather than addition of new young stock.

3. The internal structure of our population is shifting toward an increasingly greater proportion of older people.

4. The trend is toward a smaller proportion of males in the population.

5. Governmental and industrial policies have tended to increase the gap between biological-life and working-life, with consequent inefficient utilization of manpower.

A brief discussion of these factors establishes a basic framework for viewing the problem of aging in relation to industry.

SATURATION LEVEL OF POPULATION

Figure 1 shows the growth curve of the United States from 1800 to 1950 with logistic forecast to the year 2000. Three forecasts are indicated: Curve A, a high saturation at 200 million based on a combination of socioeconomic factors continuing favorable to growth; Curve B, a low saturation at 175 million, based upon a combination of unfavorable factors; and Curve C, a medium or most probable saturation value of 185 million. These saturation levels are not predicated on arbitrary assumption as to immigration, fertility, or death rates; they are derived from the basic characteristics clearly defined in the past record of growth. The United States as a whole, as well as the 48 individual states and the major cities, are well past middle age and are rapidly approaching population saturation. After the phenomenal growth of the past 150 years, it is difficult to realize that the United States is no longer a young country. As of 1950, it is about 80% old with only 20% to grow to saturation level. And furthermore, the United States with a coefficient of growth of 0.6 is growing around an "S" curve at a pitch twice as steep as the rest of the world.[1]

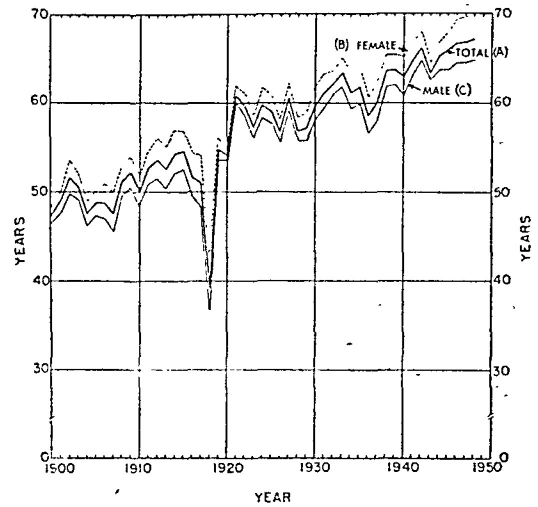

Fig. 2.—Average length of life. Total population and death registration of the United States from 1900 to 1948 (after Greville and Carlson).

INCREASED LONGEVITY

Not only is population in the United States experiencing a decreasing rate of increase, but much of the recent growth has been due to increased longevity associated with the advances in medical knowledge and public health practice. Figure 2 shows the trend in average length of life (expectation of life at birth) as estimated by the National Office of Vital Statistics[2] based on the mortality of each calendar year from 1900 to 1948. Curve A is the expectation for the total population and Curves C and B differentiate between males and females. While there is considerable fluctuation from year to year, the upward trend is unmistakable, ranging from about 48 years for the total population at the turn of the century

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Read in the Symposium on Aging before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

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and increasing to 67.2 years for 1948. The expectation of females exceeds that of the males by three to five years, with the recent trend toward increasing the differential. The influence of the devastating influenza epidemic of 1918 is pronounced.

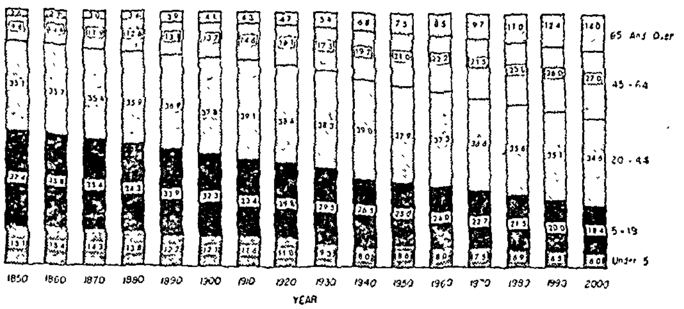

Fig. 3.—United States age distribution (per cent of total population) from 1850 to 2000.

GREATER PROPORTION OF OLDER PEOPLE

It is *inevitable that, with the trend toward decreasing* rate of increase in the total population and the increasing expectation of life, the United States population structure *must show a greater proportion of persons in the older age groups. Declining birth and death rates and immigra*tion restrictions are evidenced by a smaller and smaller proportion of young stock *in the population, with a shift* toward a larger and larger proportion of people in the older age groups. This is strikingly evident in Figure 3, *which shows the percentage of the population for each* census decade in the broad age groups, 5 years and under; 5 to 19 years; 20 to 44; 45 to 64; and 65 and over. The numbers in each age group are expressed as a percentage of the total population of each of the respective census years 1850 to 1940. The forecast to the year 2000 has been based on logistic characteristics of the total population, taking into consideration the dynamics of socioeconomic opportunity reflected in the past growth, *and was not restricted by arbitrary assumptions as to* immigration, fertility, and mortality. It will be observed that the middle age group, 20 to 44, remains reasonably stable, but the two younger age groups decline while the two older age groups showed marked increases. In 1850, 15.1% of the population was 5 years or under, and 37.4%, 5 to 19 years. These percentages declined to 8% and 26.5%, respectively, in 1940, and the forecast indicates that by the year 2000 the decline will continue to 6% for the 5 years and under group and 18.4% i the 5 to 19 years age group. On the other hand, the percentages of the two older age groups—45 to 64, and 6 and over—in 1850 were 9.8% and 2.6%, respectively. These increased by 1940 to 19.7% and 6.8%, respectively, and the forecast for the year 2000 shows the 45 to 64 age group increasing to 27%, and the 65 and ov group to 14.0%. In 1850, 52.5% of the population wa 19 or under, while only 12.4% was 45 and over. In 194 this shifted to 34.5% *in the 19 and under* group, while th age group 45 and over increased to 26.5%, and the forecast to the year 2000 shows about 25% of the population 19 years and under, with a *marked increase* in the older age group 45 and over to about 41%. These ar significant shifts in the *internal structure* of our population.

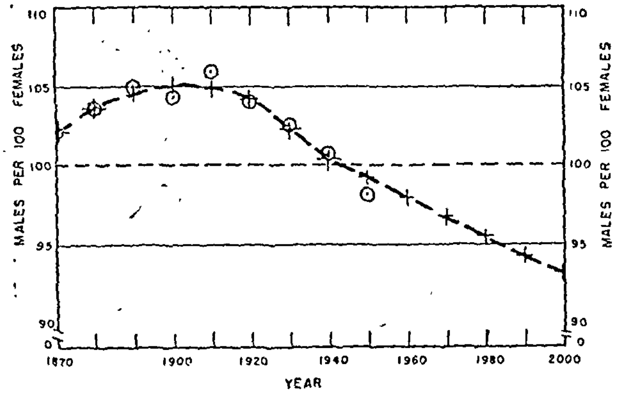

Fig. 4.—Sex ratio of males to females in total United States population from 1870 to 2000.

SMALLER PROPORTION OF MALES

Another internal shift in population structure which has a bearing on the manpower situation is the declin in the proportion of males in the population. For the first time in our history, the census in 1950 reports more females than males in the United States. Figure 4 shows the sex ratio, males to females, in the total population for the census years 1870 to 1950, with a forecast to 2000. In the early years males outnumbered the female but there has been a gradual trend toward the revers

This is the over-all picture of the prospects concernin *the potential labor force within the population structure of the nation, and it is within this framework that w must view the problem of aging as it affects industr While our production goals are pointing upward, o available resources are growing more restricted. Th basic question then becomes:* How can we most efficient utilize our limited labor resources?

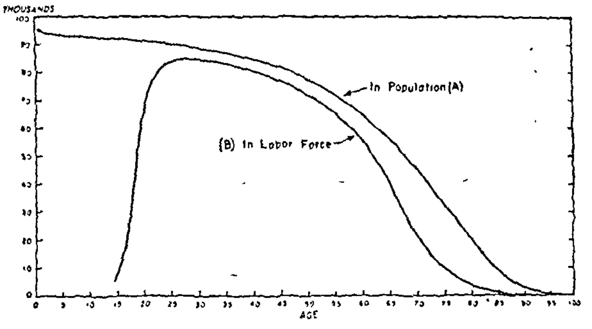

Fig. 5.—Stationary population and labor force; total number of male 1940. Number living, of 100,000 born alive (United States Departme of Labor, Bureau of Labor Statistics).

INEFFICIENT UTILIZATION OF MANPOWER

A recent study made by the Bureau of Labor Statistics affords an opportunity to appraise the efficiency of th utilization of manpower in industry. Figure 5 presen graphically a comparison between biological-life ar working-life, based on mortality rates and the accessi and separation practices from the labor force which pr vailed as of 1940. Curve A shows the number of perso living of 100,000 born alive in the population at any ag This is based upon 1940 mortality rates and represen stationary population. Curve B shows the number of m in the stationary population, who are in the labor for in each year of age under conditions of labor force participation similar to those prevailing in the United States in 1940. The labor force is that defined by the Bure

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3. Tables of Working Life: Length of Working Life for Men, Bull. No. 1001, Labor Statistics Bureau, 1950.

of Census [4] and, in general, includes all persons 14 years of age or over (not in institutions) who are employed or who are seeking work, including members of the Armed Forces. It will be observed from Curve B that there is a sharp accession to the labor force in the late teens and early twenties, reaching a maximum participation in the late twenties, with about 85,000 of the 90,000 survivors participating, or approximately a 95% utilization. In the middle years of life, it will be seen that the labor force parallels the biological population curve up to the mid-50's with a differential between the two groups of 5,000 to 7,000. However, since the number remaining alive is declining, percentagewise the efficiency of utilization of manpower declines. The gap between the two curves, of course, also reflects those males unable to work or confined to institutions. But, unfortunately, after the mid-50's, the labor force curve declines sharply either by enforced or voluntary retirement and the gap between the two curves widens, indicating an inefficient utilization of manpower. At age 55, 90% of the available manpower is in the labor force, dropping sharply to 67% at age 65, and at age 75 to less than 30%.

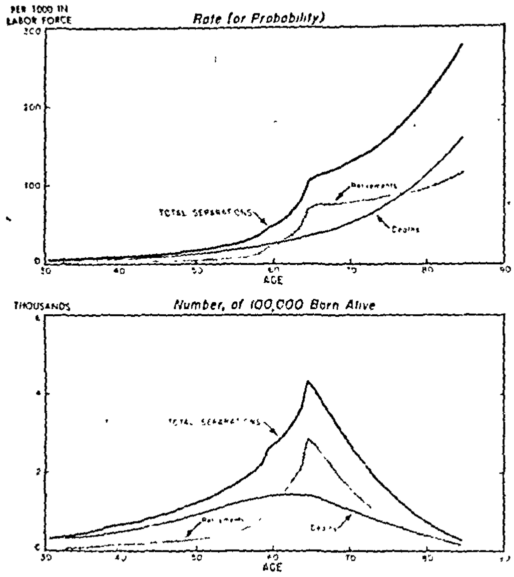

Fig. 6.—Annual labor force separations due to death and retirement; total number of males. 1940 (United States Department of Labor. Bureau of Labor Statistics).

As further illustration of inefficient utilization of manpower in the older ages, Figure 6 shows the annual rate of separation from the labor force due to death and retirement. Separations due to retirement, as distinct from death, cover all other withdrawals, disability. old age, eligibility for pensions, prolonged unemployment, or other factors. Between the ages 14 to 31, separations from the labor force are practically entirely by death; for ages 32 and over, the total separations are distinguished between those occurring by death and those by retirement. It will be noted that the biological separations from the labor force by death form a smooth, easy rising curve, while separations by retirement show a sudden, sharp rise commencing in the late 50's, with a maximum rate of 70 per thousand by age 64-65. Retirement rate rises after age 65, but at a much slower rate. The sharp characteristics of retirement practices reflect arbitrary governmental and industrial practices, but not necessarily inability of people at these ages to perform useful work.

Another interesting measure of the efficiency of utilization of manpower is illustrated in Figure 7, based on 1940 conditions of mortality and separation. The "Life" curve measures the average number of years of life or the average biological-life expectancy of men at a given exact age. The curve designated "In Labor Force" represents the average number of years remaining in the labor force, or working-life expectancy. The difference in years between these curves indicates the gap between "biological-life" and "working-life" expectancies and, as such, measures efficiency of utilization of manpower. A young man on his 21st birthday could expect to live an additional 46 years, or to age 67, but he could expect to remain in the labor force only an additional 40 years, or until age 61. He could anticipate a gap of about 5 years between his biological-life and his working-life. The gap remains about the same, increasing to about 6 years at age 60, and thereafter the gap closes for those few who remain in the harness to the end of life.

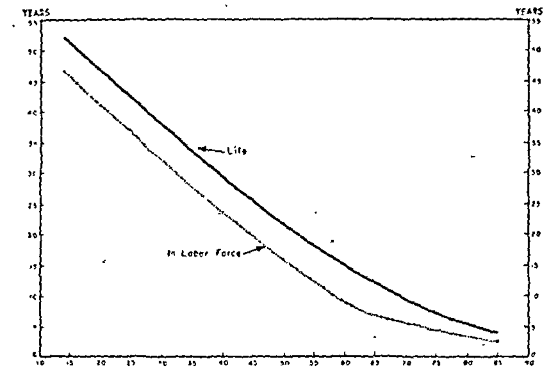

Fig. 7.—Average number of remaining years of life and of labor force participation among male workers, 1940 (United States Department of Labor, Bureau of Labor Statistics).

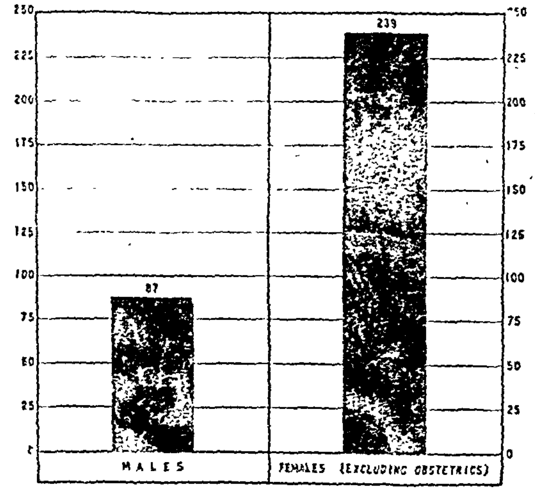

Fig. 8.—Sickness frequency rates per 1,000 hourly employees by sex. Data are based on 14,000 and 14,500 Group Insurance Program claims closed through December, 1950, beginning in the 12-month period ended July 31, 1950.

In our enthusiasm over utilization of the older man, we should not fail to realize the great loss in man-years of productive capacity occasioned by accident or poor health, forcing a young man with a high life expectancy to be separated early in life from the labor force. Good community and industrial health practice can make a great contribution here, not only in preventing separation from the labor force but in preventing the current loss of man-days due to illness and accidents. A total of 40 million [5] man-days was reported as lost time in industry due to accidents alone in 1950.

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[4] 16th Census of Population or Census Bureau's Monthly Report on Labor Force.

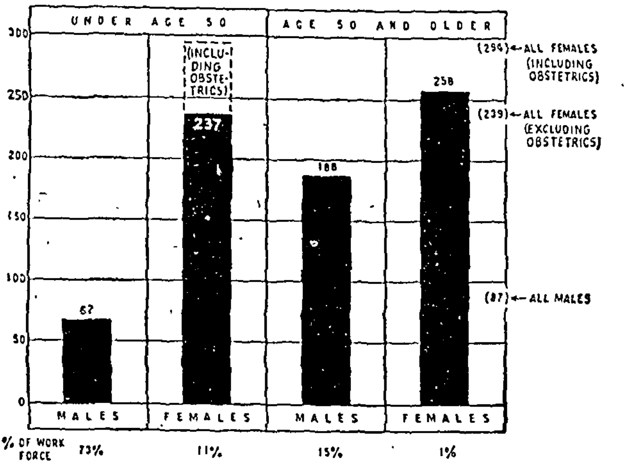

Fig. 9.—Sickness frequency rates per 1,000 hourly employees by sex and age: data are based on 14,000 and 14,500 Group Insurance Program claims closed through December, 1950, beginning in the 12-month period ended July 31, 1950.

Thus far discussion has centered on utilization of men. There remains a reservoir of womanpower which cannot be overlooked. Some indication of the health aspect associated with employing women is obtained from a recent report,[6] "Non-Occupational Disability in General Motors," based on claims filed by employees for sickness and accident benefits under the General Motors Group Insurance Program. The total time lost from work because of nonoccupational disabilities which lasted more an seven days amounts to over 3¼ million days per ar. for General Motors, equivalent to a labor force to operate the entire Cadillac Motor Car Division for a full year. This is nonoccupational disability, emphasizing the importance of not only industrial health but community health as well. Of special interest is the marked difference between male and female employees, as illustrated i Figures 8, 9, 10, and 11. In the course of a year, 87 mal employees out of 1,000 have a nonoccupational sicknes lasting more than seven days. The over-all female rate, (Fig. 8) is 239 out of 1,000 (excluding obstetrics) o three times more than males; the young female (unde 50) rate (Fig. 9) is 4 times that of the males.

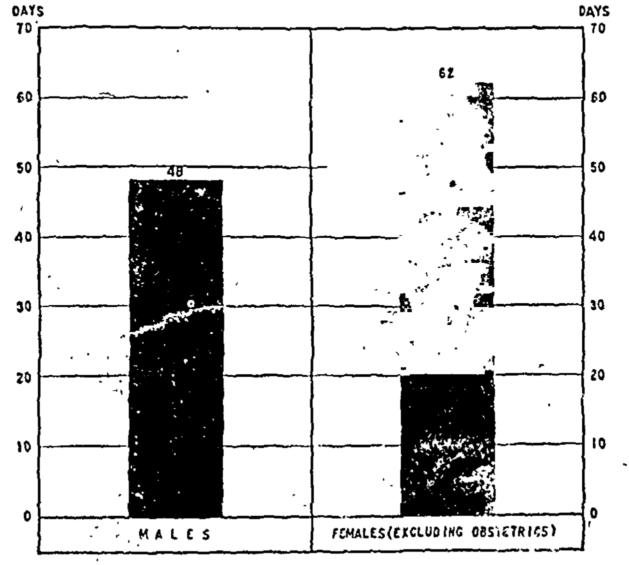

Fig. 10.—Average duration of sicknesses among hourly employees by sex: data are based on 14,000 and 14,500 Group Insurance Program claims closed through December, 1950, beginning in the 12-month period ended July 31, 1950.

Not only in frequency of sickness but also in duration (Fig. 10 and 11) the female employees exceed the male. While the female employee is out an average of 62 days, the male employee is out an average of 48 days.

This should suffice to indicate that there is no easy solution to the problem of adequate efficient labor force either we reach upward into the older age group of me or we utilize a larger proportion of women, or both.

COMMENT

The consequences need not be as dark as is reflecte by current statistics. Some of the poor showing reporte for older men and for women is not necessarily inhere in these sources of labor force; rather it is in part, o failure to differentiate and delineate the capacities an limitations of the individual, whether male or female.

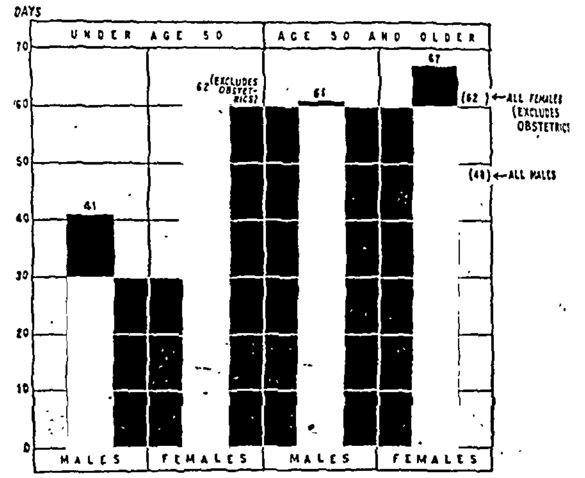

Fig. 11.—Average duration of sicknesses among hourly employee sex and age: data are based on 14,000 and 14,500 Group Insurance gram claims closed through December, 1950, beginning in the 12-m period ended July 31, 1950.

It is a well-recognized principle in tooling of indus that it does not pay to use a chisel as a screw driver. it is expected that any human can do any job as efficie as any other. There are too many "human chisels" be employed as screw drivers and that is why some of statistics look so bad. When industry puts the right or woman on the right job, a tremendous improvem in efficiency will result. There is evidence of the vali of this in recent industrial practice. At Dodge Divisio Chrysler Corporation,[7] where an effort was and is be made to fit the job to the man; in a quality control rep a division of old men and handicapped rated near the with rejects less than 1% compared with 2% in other departments, and accidents at a minimum.

CONCLUSION

The facts are clear; our labor force is quite limited a whether we like it or not, pressures of production require reorientation to greater use of older men and a women. Industry has been brilliant in mechanical tooli The challenge is to apply the same brains to "hum tooling."

School of Public Health, University of Michigan.

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[5] Report of Mutual Fire and Casualty Insurance Industry, 1950.

[6] Courtesy of Mr. James Gillen, Director of Personnel Research, General Motors Corporation; and Dr. C. D. Selby.

[7] Wharton, D.: Old Man's Department, Forbes 50: 14 (Nov.) 1942.

TRAINING THE OVERAGE EMPLOYEE FOR RETIREMENT

Phil N. Scheid, B.A.Sc., Chicago

All competent speech instructors advise the neophyte to commence his address with some sort of a shocking statement; he should say something unusual about the usual. In this instance the title of this address in itself has a sufficiently shocking effect on the average member of the industrial management family to render any further treatment unnecessary. His most likely comment is "Why should industry undertake the expense and effort of a training program for the benefit of an employee who is about to be retired?" and he most logically argues that any further benefits paid for from productive earnings would be fostering the trend toward industrial socialism. Another comment might be "Why does a man have to be trained to rest?" although there is a growing recognition of the fact that preparation is necessary against the day when only the personal problems remain for thought and worry—when most time becomes leisure time.

Isn't it sufficient that many heavy manufacturers have now agreed to underwrite the expense of noncontributory retirement and pension programs, extended vacation benefits, liberalized sick benefits, and many additional so-called fringe items that in no way can be correlated with the individual's productive output?

The past five years have seen an increasing growth in the expense of these fringe costs. The 1950 cost of fringe benefits in one of our largest steel corporations was eight times as great as the fringe cost of 1936. The reluctance of business can, therefore, be understood when the subject of training for retirement is introduced. In contrast, however, the increasing general interest in "employee benefit" programs may explain why some efforts are being made by business concerns to undertake the problem of preparing the overage worker for retirement.

RETIREMENT PREPARATION PROGRAMS

Possibly in smaller communities, the "public relations" value of "doing something" for the retired employee is of sufficient import to a company to warrant the establishment of a retirement preparation program. Other business organizations, which have already committed themselves to assist retired employees through the installation of various types of benefit plans, feel that they are morally bound to extend further their interest in the form of retirement preparation programs.

Inasmuch as several such programs are in operation, we can surmise that some business organizations have accepted the responsibility for preparing employees for retirement.

We might arbitrarily classify these programs into two groups: "postseparation" and "preseparation." By way of definition, the postseparation programs are those which attempt to provide the retired employee with some useful worthwhile activity once his employment relationship is disconnected. Preseparation programs are those of an introductory nature which manifest themselves in the form of conferences or individual consultations or arrangements with prospective retirees prior to employment separation.

Postseparation Programs.—Let us first examine a postseparation program. One such program is that of the Mohawk Development Service. This is an independent concern consisting primarily of retired employees of one of the larger electric corporations. It is an independent group working in the field of electrical engineering design. It is understood that this program is not corporation sponsored, but it certainly bears watching by the larger companies as an experimental project.

Preseparation Programs.—Preseparation programs are by far the more numerous. Typical among these is the recently inaugurated "step down" retirement plan of Wrigley Corporation. On attainment of normal retirement age, the employee is granted a one-month leave of absence without pay. During the following year he is granted a two-month leave of absence without pay, and this leave period is thereafter expanded until he had gradually adjusted himself to his retired status through a gradual diminishing of active employment periods.

Another such program is that of the Ithaca Gun Company of Ithaca, New York. It is probably unfair to refer to this activity at Ithaca as a retirement program inasmuch as employees are allowed to continue working as long as they are qualified to perform their work assignments. At Ithaca, employees are retained on the active payroll beyond what is generally referred to as the normal retirement age.

These cases indicate extreme examples of the trend in industrial thinking toward adjustment programs for retired or overage employees.

For our purposes we may further subdivide preseparation programs into "group type" programs and "individual consultation" programs.

Group Type: Typical of the group-type preseparation programs is the work done by Esso Standard Oil Company. Sometime prior to retirement, the group of employees is organized in a series of five sessions, each of one hour in duration.

The following topics are covered: What is Retirement? Retirement and Your Health, Planning Your Retirement, What Have Others Done, and finally, a Round Table of Plans.

Where financial problems must be solved, individual conferences are arranged with personnel counselors. Probably Esso is farthest advanced in the field of group programs for retired employees. The main feature of the Esso program is the sharing of personal plans and ideas

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Director of Training and Research, Pullman-Standard Car Manufacturing Company.

Read in the Symposium on Aging before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

The school system must adjust to a gradually decreasing number of young folks. Simultaneously it must adapt its curriculum to prepare pupils for a lifetime at least a third or a half longer than that for which students were once prepared. It is imperative that courses for adults be given the place in any community's system of education which the size of the adult population deserves. The social services, which in line with the general cultural pattern have placed their major emphasis on youth, must soon begin to include in their consciousness and in their programs meeting the needs of aging persons as individuals or as members of a family group. Only by more scientific study of the young and the old and the relation of one to the other will better and more useful data for the guidance of each be developed. Family agencies must discover what effect the presence or the absence of older people in the family has on the family. Especially is this indicated since in spite of the seeming instability of the family we are still led to believe it is the place most conducive to the maintenance of emotional and mental balance for the general run of individuals of any age. Census figures would lead us to the conclusion that all social institutions must adapt their services to communities with more single elderly individuals in them—especially single women—who are outliving and outnumbering the men in the upper age brackets. In other words, all professional personnel who share the common goal of helping individuals to realize to the fullest their capacities for living have had placed on them a new and inescapable responsibility for divesting themselves of the prejudices to which they are naturally heir as to aging and old age, of their resistance to an appreciation of the positive elements in an older person's situation and in his personality, of their understandable tendency to concentrate efforts upon the young. Only if this happens can the stereotype, which has so firmly fastened a strangle-hold on our minds and our emotions, be thoroughly shattered and a new prototype set for old age in the coming decades.

With the rapid march of business and industrial organization and the concurrent drive for improved working conditions, the dividend of more leisure time has accrued to all members of society. This presents the country with a challenging paradox. The concerted efforts to achieve shorter working days and weeks by the younger segment of the population, or by those in the active labor force, have been counterbalanced, on the other hand, by the intense dissatisfaction of many oldsters who find themselves committed, willy-nilly, to a life of leisure and, for far too many, one of idleness and utter boredom. This reallocation of time invests it for some with real value, and for others robs it of all value. Hence there is for the first time the phenomenon now engaging the attention of many communities, local, state and national, of idle hands and minds belonging to thousands of unemployed not regarded as of the labor market, for in it are the roots of the Townsend and other old age movements led by opportunistic demagogues. One antidote to these is the organization of "golden age" clubs, which appear at first blush to be very superficial, but which if provided with professional leadership, endowed with a seriousness of purpose, and correlated with sound adult educational programs and with those of religious groups, can be genuinely useful in giving older people the thrill and excitement of creative activity and the essential feeling of belonging. While such activity may serve in lieu of gainful employment, it also serves simultaneously as a brake on the less constructive use to which the organized groups of people, *with time on their hands* in the later decades, have been put. Beyond this, it also serves as a means of the possible prevention or retardation of the alarming movement of persons 60 and over into the hospitals for the mentally ill—an expensive drain on the state for care that is inappropriate and is actually required, at least on first admission, by relatively few persons.

One other striking sociological aspect of our agin population directly related to the oversupply of enforce leisure, as well as that which is welcome, is to be see by anyone who looks. That is the movement of the olde people whom we have so successfully fractionated fro the rest of the community to warmer climes and to plac where living promises to be easier and cheaper. Such movement can result not only in leaving abandoned far and ghost towns in New England and the Middlewes but also in developing a new kind of boom town in t South and West, in which the average age will be in t seventies and the average income will not be hi but fairly regular. Not only will this movement entail revision of civic government and services in the tow the oldsters have left behind them and in the towns which they have descended to settle anew in their age, but this inevitably will affect reapportionment representation on the basis of the voting population the respective areas. It has been said by men wise in political sciences that older people do not change th political loyalties. If this be so, the political activit of different parts of the country may be tinged if colored by the admixture of sizable numbers of vot from elsewhere, and the home state too will sense shift of power by its losses. It may therefore be the p of wisdom and sound strategy to study the theoreti projections as to the direction of the treks of a people w have the habit of travel and also have the leisure w which to indulge that habit. Services or housing app priate to their changing needs may then be plan with a greater probability of their suitability and locati Such study might demonstrate that, if life in the ho town could be made more tolerable and enjoyable, t is where they would likely prefer to keep the perman home base.

CONCLUSION

The sociological changes occasioned by the aging the population are many. They cut deep into the so pattern of every community. The response of society such changes notably lags behind the recognized indi tions for action. The coming decade will be a critical for older people and for society as a whole. The f stirring of an awakened country, now reflected in cussion and openly expressed concern as to the ag population, must soon be converted into positive acti It is inconceivable that the American people once arous will not work out the desired integration of its aging a aged citizens, for on this is dependent their own ultima salvation. The words of Lloyd George, "The true t of our civilization is in the way we treat our old peopl have significance for us today as never before.

105 E. 22nd St.

AN ORIENTATION OF THE PROBLEMS OF AGING

Robert A. Moore, M.D., St. Louis

The problem which is before all people in the United States in general, and before gerontologists in particular, may be stated in a simple question: What adjustments should and must be made in our society to meet the changing proportions of age groups in our population? The answer to the question is not simple because the solution of the problem, and consequently the adjustments, will touch on every facet of our social and economic life.

WHAT GERONTOLOGY IS

Gerontology, the study of the aging processes, is not a discipline of concern chiefly or even primarily to the gerontologist. In fact, I believe we would make more progress if we recognize once and for all that gerontology nt prac separable and distinct area of knowledge and ac- pool and her, it is a subspecialty of every other branch r will be faced w ply this concept to medicine, that is to to all other areas. Thus, there may s, geriatric surgeons, and geriatric iatricians who cover the entire field tunately, a group of internists inter- f the aged have come to be looked e geriatrists, when in fact most of them to deny this and would call themselves . A minority in favor of a separate nalogy with pediatrics, forgetting that the present day pediatrician is in fact a pediatric internist who calls in consultation the surgeon, the urologist, the otolaryngologist, and others.

On the other hand, I would equally defend the formation of societies of gerontology and of geriatrics, if for no other reason than I would be a hypocrite if I did not, since I was one of the incorporators of the Gerontological Society. The value of societies and meetings of those interested in aging and the aged is not to separate the members and attendants from other groups, but to bring together individuals from many different groups in a joint study of mutual problems.

Thus, I would make as my first point in what our chairman has graciously called "orientation," that gerontology is not a science or a discipline in the usual sense, but is interdisciplinary in its scope. With this concept no one is only a gerontologist or a geriatrist.

PROBLEMS OF GERONTOLOGY

With that as a starting point let us proceed to examine some of the more important problems of gerontology. Manifestly it is impossible in a short time to discuss any one more than briefly. It is apparent that my selection of topics and my discussion of them will be colored by the fact that I am first, a physician; second, a pathologist; and third, a dean.

Need for Knowledge of Aging Processes.—I would consider as most important the need for greater knowledge of the nature of the processes of aging, i. e., the biochemical and biophysical processes that occur as protoplasm ages.

Let us approach this problem in the same way we have attacked the problem of the infectious diseases. The morbidity and mortality from the infectious diseases were not brought down by starting with an attempt to treat each of them specifically. Public health and preventive medicine today rest on 70 years of careful basic laboratory study of the growth characteristics of bacteria and viruses, and the reaction of tissues and cells to them.

In these fundamental investigations we should not place too restricted a definition on gerontology. Most people associate the term with the higher groups of chronologic age, with man or at the most mammals, and with biology. Much of value will be lost if this concept is accepted.

First, aging may be studied at any chronologic age in certain tissues and cells. For example, Heuser's membrane appears, does something, and disappears during the first 10 days of human gestation. Or, the ductus arteriosus undergoes involution in the first two months after birth. Or, the thymus begins to involute after puberty. Or, the healing of a wound at any age reproduces the cycle of life with proliferation of fibroblasts, deposit of collagen, and maturation of the scar. A precise study of the conversion of fibroblasts to fibrocytes, the maturation of collagen, and the hyalinization of connective tissue in an animal of any age might give real information on age changes in connective tissues, one of the more significant and important fields of study.

Second, aging is not restricted to man or to mammals, but occurs in all forms of life and in some inanimate objects. In fact, by analogy with other fields where progress has been made, investigation in the lower forms is simpler because of better control and fewer unknown factors. A study of the aging of crystals or of metals may well have a bearing on aging of protoplasm.

Third, aging is not a process which is entirely biological in a physical and chemical sense, but is a process with psychological and sociological aspects. These approaches must be studied independently and in cooperation with the biological. Our objective is not only "to add years to life," but also "to add life to years." What have we gained if we keep people alive but devoid of the joy and satisfaction of life. I believe that, with energy and imagination, we can some day define and study mental and social factors as precisely as today we study chemistry. Need I say any more along the line of fundamental studies to illustrate my basic thesis that gerontology is interdisciplinary in scope and activity periodic

*Recruitment and Training of Person*y procedures second to fundamental investigation. yee appeared for meeting the problem of geront ver, no mechanical de- and training of personnel. l acumen of the examining he apparent deficiencies of is the fact that this system tion of the doctor-patient

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men and women in the field. On this topic I would again emphasize that we do not wish to train gerontologists, but rather biochemists, physiologists, internists, and others who have a special interest in problems of aging.

It is desirable to establish a few major centers of research and education, but make certain they do not become ivory towers isolated from other activities and fields.

Provision of Medical Care.—A third topic I wish to discuss briefly is more prosaic than research and education, and that is the provision of medical care, both professionally and physically, for an aging population.

It is recognized that the older person has greater need of the physician. The tentative figure of the Health Insurance Plan in New York gives some idea of the magnitude of this. For men 65 to 69 the average physician service per year was 4.9 visits as compared to an average of about 3.5 visits in the 20's and 30's or almost 50% greater. With women the utilization rate in the aged is not as great as during the reproductive period so there is no problem because of the increase in the higher age groups.

On the physical side, there is the question of the size and type of hospitals. First, there is a progressive increase in invalids with increasing age. Invalidism is a relative term, and this accepted fact is nothing more than an indication that we must place increasing emphasis on rehabilitation in our hospitals and clinics. America, for its own salvation, can not tolerate the degree of invalidism we have in the past. Millions of people must be rehabilitated to a useful social and economic life.

Second, older people are admitted to hospitals m
frequently and stay longer. Thus, a given proportio
hospital beds to the population 10 years ago or toda
not adequate for the future. For example, in the Bell
Hospital, New York, the percentage increase in ad
sion of older persons is very different from the shif
population.

Further, many of these older people do not req
the type of hospital care which has been used in the
Our hospitals are designed and operated for the ac
ill person requiring room service plus. Many pati
and particularly those with a chronic disease, re
full hospital service for a few days and then would b
fit physically and psychologically from a modified
plan.

There are many other topics I could discuss. Th
I have mentioned only medical problems is a reflecti
my own primary interests and is not an indication
not believe that the sociologist, social worker, the ec
mist, the psychologist, and many others do not ha
important contribution in this field.

SUMMARY

In summary, my concept of an orientation in g
tology is first, that we have an increasing problen
must give it increasing attention; second, that g
tology is a subspecialty of many other specialties
hence, is interdisciplinary in scope rather than a di
discipline; and third, that individuals from many dif
fields must cooperate in a solution of the problems.

507 S. Euclid Ave.

INDUSTRIAL MEDICAL ASPECTS OF AGING

S. Charles Franco, M.D., New York

We are all aware that a progressively larger proportion of our national population is comprised of middle-aged and older people. In the past 50 years, the average life expectancy of the American people has increased from 49¼ to 67½ years. As a result of this increased life expectancy, the number of persons in our nation who are 65 years of age and over has quadrupled since the turn of the century, while the over-all population figure has only doubled. Today 1 out of 12 persons in our country is over 65 years of age; by 1975 this number will soar to 1 out of every 9 persons.

The increase in average life expectancy has not been associated with a proportionate increase in working-life expectancy. The gap between retirement and death now stands at five and one-half years; about double the length
of that in 1900. Under the present trend it will have
not regar 1975. Industry, if it continues its present re-
roots of the To tices, will be faced with a seriously depleted
led by opportunistic op-heavy pension costs. The individual
is the organization of "g ith increased years of inactivity,
at first blush to be very superfi
with professional leadership, e
of purpose, and correlated wi
programs and with those
genuinely useful in giving

with a drastically reduced income, under con
which are psychologically and physically degener

For the medical man in industry these facts and
present two serious problems which need attentio
first is an immediate problem and concerns men w
at, or near, the so-called "normal" retirement age
It presents the question to us, "How can we keep
men in the nation's manpower pool as productive
bers?"

The second problem concerns a long-range vie
covers all workers. The problem is this: "How c
prevent the nation's workers from falling prey
diseases of old age—so that they can look forw
longer years of health and productive labor?"

RETAINING ABLE WORKERS OVER AGE 65

The first question was dealt with recently in a
presented at the American Gas Association Conv
by the late Dr. John J. Wittmer, vice-president in
of employee relations at the Consolidated Edison
pany of New York. In this paper, entitled "Are
beards White Elephants?" Dr. Wittmer propose
establishment of a retirement panel to review each w
coming up for age retirement on an individual basis

Consolidated Edison Company of New

Aging before the Section on Preventive
lic Health at the One Hundredth Annual
Association, Atlantic City, June 14, 1951.

the purpose in mind of continuing in industry, beyond age 65, workers who are physically and productively able. This panel would be composed of an executive representing the physical employee groups, an executive representing the nonphysical employee groups, and an executive representing industrial relations activities. It would make its decision, as to whether a worker would be retained or retired, on the basis of an efficiency report submitted by the worker's department and a report on the employee's health status submitted by the medical department. The importance of the medical department to the success of this program can be easily seen.

A LONG-RANGE PROGRAM

If the medical department is important in solving our first problem, it is doubly important in a long-range program designed to help workers to continue for as long as possible as self-supporting producers.

The fact is widely recognized and accepted that it is not a worker's chronological age which necessitates his retirement at age 65, but rather the physical disabilities which normally accompany advanced age. Our aim, then, should be to free workers, as much as is possible, from these disabilities.

Rehabilitation of Workers with Chronic Diseases.—This program would be a two-ply one. The first phase would be concerned with the rehabilitation of workers of any age who are chronically disabled by such medical conditions as heart disease, hemiplegia, arthritis, or tuberculosis, so that the remaining physical capacities of such workers might be effectively utilized and their working life-span lengthened. Very worthwhile results have been obtained by the retraining of workers handicapped by amputation, deformity of limbs, or loss of vision, as we all know. I see no valid reason why there could not be similar industrial rehabilitation of workers disabled by the chronic diseases. Of course, the role of the industrial medical department in the rehabilitation process would be limited to the selection of the type of patient who would be benefited by rehabilitation, and assistance in the selective placement of the retrained worker. The actual rehabilitation process entails, as we all realize, treatment and facilities which do not fit into the scope of an industrial medical department, and would have to be handled by those organizations which specialize in such work.

Administration of the selective placement program would be carried out by a disability panel such as we presently have at Consolidated Edison. This panel, which is composed of representatives from the medical and personnel departments, the operating department concerned, and the executive management, meets weekly to review the problem presented in each case where physical disability has been established by work performance or medical examination, or both. The medical information is kept confidential and is described in broad terms as an "acute" or "chronic" medical condition. The possibility of recurrence or progression of the disease is noted. The prognosis as regards absence frequency and life expectancy is estimated. The physical restrictions required for the welfare of the employee and the safety of others are outlined, and the operating department matches these against the job requirements. At present this panel makes one of two decisions: either the man is retained as being capable of placement in a job where his disability will not affect his work efficiency, or he is retired for disability. It is easy to see how this panel could also be utilized to administer a rehabilitation program and provide for the placement of employees successfully rehabilitated.

Detection and Prevention of Disease.—The other, and larger, phase of our long-run industrial health program would be concerned primarily with the detection and prevention of diseases which would shorten work-life expectancy. As we all know, the leading causes of death today are diseases of the heart and arteries, and cancer. These are diseases which strike primarily at persons over age 40 and are thus the diseases with which we must be most concerned. Of the two, cancer is but a small factor in causing disability in industry. Heart disease is the primary enemy of the older worker, and it is against this malady that our greatest efforts must be expended. Statistical analysis has shown us that hypertension and coronary artery disease are the most prevalent of the cardiovascular diseases in the older worker; in fact, in a review of 1,821 cases of heart disease among the 25,000 employees in our company we found that coronary artery disease, hypertension, and arteriosclerosis accounted for nearly 90% of the cases. It is my belief that an adequate program of preventive medicine on the part of industry can save many of its employees from the crippling effects of such ailments.

I believe such a program should have as its foundation, a periodic physical examination beginning at, say, age 40. The practicability of extending this type of examination to all our employees has encountered the obstacle of time consumed without evidence of tangible return. A multiphasic screening examination that utilizes certain laboratory procedures, without accomplishing a complete physical examination, has been advocated as a means of selecting patients who should undergo more detailed examination. Although the value of the multiphasic screening technique has not been thoroughly established, its use as a preliminary step, to eliminate from further examination those employees who have normal findings, should result in a great saving in time and money and might prove more practical than exclusive use of the time-consuming periodic examination. This multiphasic screening test would consist of blood pressure reading, weight, urinalysis, blood serological test, and possibly hemoglobin determination, electrocardiogram, and ballistocardiogram by a portable direct writing machine. If available, a chest x-ray or photofluorograph would give additional information concerning the lungs and, in some cases, the heart. The screening technique could also be utilized as an aid to the periodic examination by having all the laboratory procedures assembled in one file when the employee appeared for the physical examination. However, no mechanical device can replace the clinical acumen of the examining physician, and, aside from the apparent deficiencies of the screening technique, there is the fact that this system overlooks the personal equation of the doctor-patient relationship.

A complete periodic examination and interview could be accomplished in 20 or 30 minutes, especially if the aforementioned basic laboratory data is prepared in advance. The procedure could be further expedited if the employee appeared for the examination with a short outlined health history form on which he had previously checked certain important items. An outlined physical examination form would allow the physician to rapidly list the clinical findings. Using this technique, the physician will have time to impart advice on errors in diet and habit which seem to be related to degenerative disease. Although health education without a personal physical examination has been proven valueless, an examination with no explanation or advice to the employee involved would also prove without value. Health counselling has proven its worth in the periodic examination of executives.

CONCLUSION

No results can be guaranteed for the programs whi I have suggested, but, if we go slowly, first on a limi scale, and with proper prudence as to the cost involve we may find that these programs can result in a savi for industry of thousands of workers formerly declar unfit for active work, and may bring to thousands of pe sons longer life, improved health, and an opportunity t continue as active members of society long after age 6 The responsibility of the medical department to th worker and to industry will be great. The situation ca for a great deal of clinical acumen and for the develo ment of clinical and administrative techniques to pro erly evaluate our progress in dealing with the problem of aging in industry.

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PSYCHIATRIC ASPECTS OF AGING

Leonard E. Himler, M.D., Ann Arbor, Mich.

From a purely chronological point of view, the psychiatric disorders of the aged fall into three main groups: the presenile disorders, which begin as early as the fourth decade; disorders of the involutional period, which occur between 45 and 60; and the senile mental diseases, which have their onset after 60 or 65. But in mental as well as physical health the transition from physiological to pathological aging is influenced by many other factors besides the years the patient has lived. Individual variation in personality is as great in the older as in the younger age groups, and physiological and psychological age by no means always parallel chronological age.

Although certain psychological problems are common to all who reach the period of senescence, it is indeed fortunate that the overwhelming majority of the aged retain their mental faculties to the full. In a study of 477 individuals over 65 who were living in the community, Post[1] found that 81.8% were mentally normal, and of the remaining 18.2%, 14.4% showed borderline changes in their mental functions and habits. Only 3.8% showed evidence of definite psychiatric disability.

In the United States perhaps more than in other countries, the growing preponderance of aged individuals in the population has been reflected in increased demands on public psychiatry hospitals. Approximately one-third of the patients currently being admitted to state mental hospitals are over 60 years of age. A recent survey of 3,386 patients over the age of 65 in five state hospitals in Michigan revealed that this age group has increased the burden placed on state institutions to twice the extent of its increase in the general population.[2] About 38% of patients admitted to mental hospitals at present have senile psychoses or psychoses with cerebral arteriosc osis.[3] Not all aged patients with these two most comm psychiatric diagnoses automatically require commitm to public institutions. When there is inadequate provis for the care of elderly patients in their homes or com nities, institutionalization is sometimes employed nothing more than mild confusion, memory impairm and physical infirmity. Thus the reason for hospitali tion is often primarily sociological rather than psy atric. There is no doubt that the number of aged being committed, even though they are legally eligi could be reduced by intelligent social planning.

Although geriatric psychiatry has the primary res sibility of supervising the care of the aged in mental pitals, its preventive arm is constantly being extende the growing number who could be more economically more satisfactorily cared for without commitment. need is especially great with respect to borderline psy atric conditions with mild mental and emotional dete ration. Treatment of these problems must be the concern of many disciplines. The medical, vocatio and environmental aspects are often as great as the chiatric, and when the principles of preventive me health are combined with these, institutionalization often be delayed or entirely avoided.

PERSONALITY CHANGES OF AGING

There is great need for better understanding of psychological changes which take place with the nor aging process. Many elderly persons are unnecessa alarmed and pessimistic over the changes which are in evitable accompaniment of physiological aging. Just the paralyzing effect of cancerphobia must be combat by vigorous educational efforts, the common "old complex" found even in many who are not otherw neurotic should be alleviated by clearer understand and acceptance of the personality changes to be expec with advancing years. The more characteristic person ity manifestations of age may be listed as follows:

Read in the Symposium on Aging before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

[1] Post, F.: Mental Aspects of Senescence, Brit. M. Bull. 6: 54-56, 1949.

[2] Michigan State Department of Mental Health, A Report of Geriatric Problems in Michigan State Hospitals for the Mentally Ill, March, 1951.

[3] The Problem of the Aged Patient in the Public Psychiatric Hospital, Group Adv. Psychiat., Rep. No. 14, August, 1950.

1. Increased conservatism in mental outlook.
2. Exaggeration of lifelong character traits, opinions, biases, and prejudices.
3. Progressive attenuation of interest in new things and new situations.
4. Disinclination to form new habits and associations.
5. Impairment of memories for recent events, with ease of recall of past memories and indulgence in reminiscenses.
6. Decreased span of attention, lessened capacity for mental work, with greater fatigability.
7. Slowing in speed and diminution in accuracy of thought.

It is apparent that the advantages which accumulated skill, habits of work, experience, and seasoned judgment bring to the aged more than compensate for the slowing of speed and diminished flexibility of mental functions. Undue concern and preoccupation over the physical and mental restrictions, with resulting failure to utilize the personality assets of the advancing years, is a common finding in the neuroses and many of the psychoses of this age span.

PSYCHOLOGICAL CHANGES OF AGING

While there are few psychiatric disorders that do not occur either for the first time or as recurrences after the fifth decade, it is generally true that psychogenic disorders usually make their initial appearance earlier, while by far the greater number of organic brain disorders occur after the fourth decade. As is true of most nervous conditions associated with the menopause, individuals who have been psychologically well adjusted in previous years have less serious personality difficulties in their old age. It is uncommon for psychoneurosis to occur for the first time after the age of 60. In a study of 67 patients over 60 who were hospitalized because of psychoneurotic disabilities, Clow and Allen found that 21 had had adequate personalities, 28 showed conspicuous neurotic traits which did not often seem to interfere with their generally satisfactory adjustment, 13 had made a fair life adjustment with more frequent disabling episodes, and 5 had suffered consistently with neurotic difficulties.[4]

However, there are some special conditions accompanying advanced age which predispose to psychogenic disorders of varying degrees, even in individuals of relatively stable make-up who have not previously come to attention for psychoneurotic symptoms or complaints. The most important of these are (1) concern over health, whether actual or exaggerated; (2) worry over finances and fear of losing security; (3) loneliness and fear of not being wanted; (4) feelings of having outlived one's usefulness; and (5) fear of losing the place formerly enjoyed in the community. The more common external precipitating factors of neurosis in the aged are (1) death of husband or wife; (2) threatened disability from real physical disorders; (3) and, less frequently, problems resulting from financial loss, retirement, breaking up the home, and the necessity of moving into a new and strange environment.[4]

It is worthy of note that the complaints of older psychoneurotic patients revolve about preoccupation with physical symptoms, the gastrointestinal tract being most frequently involved. The aged differ from younger psychoneurotic patients in that they are less disturbed by sexual conflicts. Reactivation of infantile and early adolescent traumatic material frequently occurs in those who have had previous psychoneurotic illness. In general, the neurotic development of aged patients tends to be of a more diffuse nature, with emotional depression recurring as a prominent symptom.

EARLY ORGANIC MENTAL CHANGES

Even when the personality changes of age are accentuated as the result of early organic alteration, the capacity of the individual to adjust is more directly related to his complex cultural, economic, and family problems than to the demonstrable pathologic changes.[5] Very frequently the cerebral impairment is the least important factor requiring psychiatric treatment. It is the reaction patterns of the individual's life which offer the greater challenge to therapy. As Lawton has aptly stated, some of the ostensible mental deterioration of older persons is simply the cumulative effect of poor work habits.

A review of the personality changes found in mild senile mental deterioration reveals clearly the importance of the emotional reactions in determining which of these patients can safely continue to live in the community. Following are some of the more common evidences of simple deterioration:

1. Definite memory failure, with confabulation.
2. Markedly restricted mental activity, with a tendency toward apathy.
3. Aberration of talk; loquacity, rambling, slowing, and poverty of speech.
4. Loss of interest and desire for occupation.
5. Morbid dislike of new things and new ideas (misoneism).
6. Diminished capacity for self-care and neglect of personal appearance.
7. Pathological emotional reactions under stress.
8. Asocial behavior outbursts.

With the possible exception of the last item, none of these disturbances in less severe form must lead inevitably to commitment, but they do require modification of the social and environmental conditions which will permit the aged patient to live with safety and without harm to others. Commitment should be considered only as a last resort for those patients who show destructiveness, aggressive tendencies, combativeness, marked depression, persistent noisiness, resistiveness, and disturbing bewilderment, delusions, and hallucinations.

CONCLUSION

On the preventive side, geriatric psychiatry stands before the great task of joining with all other community resources dedicated to the improvement of the social and psychological integration of the aged within the complex framework of modern society. The first steps toward the goal of healthy transition from middle age to balanced old age will be attained if there is better understanding and acceptance of what is already known about the normal physiology and psychology of aging, if there is greater appreciation of the need for the aged to continue useful interests and activities, and if the aged are given opportunity to maintain an adequate social life and a useful place in the community.

Mercywood Neuropsychiatric Hospital.

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[4] Clow, H. E., and Allen, E. B., Manifestations of Psychoneurosis Occurring in Later Life, Geriatrics 6: 31-39 (Jan.-Feb.) 1951.

[5] Boyd, D. A., Jr., and Braceland, F. J.: The Practitioner and the Older Age Groups: Psychosomatic Aspects, M. Clin. North America, 1950, pp. 1091-1105.

COMPARISON OF EFFICACY OF VARIOUS DRUGS IN TREATMENT OF EPILEPSY

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The patients in this study on the comparison of the efficacy of various drugs in the treatment of epilepsy attended the Los Angeles General Hospital outpatient department. Altogether 1,064 charts were reviewed. Of these, the records of only 212 patients seemed adequate for this study. Ages of the patients ranged from less than 1 year to 80 years, with over one-half between 21 to 50 years old, and about one-quarter under 21. The length of time over which seizures had been experienced varied from less than 1 year to over 62 years, with one-quarter of the patients having had seizures over 15 years, and more than one-half, over 6 years.

ETIOLOGY

There was significant evidence of an organic lesion in 104 patients, and of familial incidence in 11. In the remaining 97 patients etiology could not be definitely established. Of the 104 patients with organic pathology, in 10 the pathology was owing to birth injury, in 25 to later trauma, and in 29 to infection, of which 11 were luetic, and 18 meningitic, encephalitic, or due to brain abscess. Space-occupying lesions or their sequelae were responsible in six, cerebrovascular disorder in five, and alcoholism in five. There was one patient with each of the following: Danlos-Ehler disease, Sherwood-Moore [1] syndrome, hypoglycemia, and diabetes. Porencephalic cyst or cortical atrophy was demonstrated in seven other patients. In the remaining 13 patients, more than one of the above factors was present. Electroencephalograms, -rays of the skull, and spinal punctures were performed on about one-half of the total group of 212 patients. Pneumoencephalograms were done in 22 patients, angiograms or ventricle studies in 6, and cranial surgery was done in 10.

Seizures were classified as petit mal, jacksonian, autonomic, or psychomotor, only when they were unmistakably these types. The remainder were divided arbitrarily into grand mal if sufficiently severe to cause the patient to fall, or minor-mixed type if the patient remained upright.

Anticonvulsants included phenobarbital sodium, diphenylhydantoin (dilantin®) sodium, methylphenylethyl hydantoin (mesantoin®), mephobarbital (mebaral®), amphetamine (benzedrine®) sulfate, trimethadione (tridione®), and "nuvarone" (3-methyl, 5, phenylhydantoin), an experimental drug furnished through the courtesy of the Abbott Laboratories, North Chicago, Ill. The effectiveness of the anticonvulsant was determined by comparing the number of seizures in the six months preceding its use with the number of seizures occurring in the six months following the administration of the drug. In those instances where patients continued to have seizures and therefore were given several anticonvulsants, the period of observation for each drug was often much shorter but seizures were still computed on the basis of incidence per six months. Patients were termed controlled if they had no seizures or auras in the six-month period; they were called improved if the number of seizures was reduced by over 50%.

PHENOBARBITAL

Phenobarbital was taken by 111 patients. In 34 instances it had been prescribed before the patient first attended the clinic and was the base line used for the effectiveness of other drugs. In 77 patients administration was begun in the clinic. Of these, 30 patients (27%) showed control, and 21 patients (19%) improvement. There was an increase in the number of seizures in 15 patients (13.5%). The best results occurred in the group of 53 patients who had had no previous treatment. Seizures were suppressed in 24, or roughly one-half of these, compared to 6, or about one-quarter of the group of 24 patients who were taking other anticonvulsants when placed on phenobarbital. Success varied with the type of seizure. The grand mal, minor-mixed, and petit mal types were benefited about equally; the psychomotor to a lesser extent; and the jacksonian least of all, with no patient freed from seizures, and 3 out of 7 patients made worse.

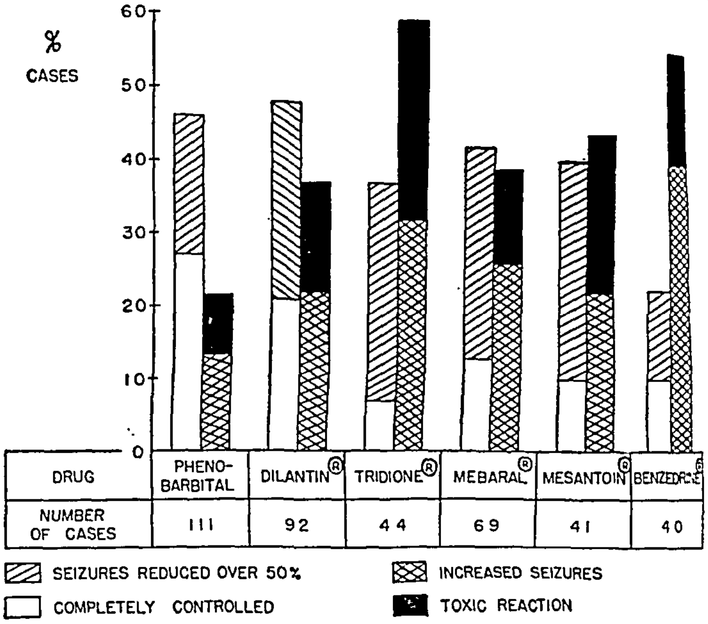

Fig. 1.—The effect of six drugs on 212 patients with epilepsy.

Undesirable side actions included drowsiness, dizziness, dermatitis, staggering, and changes in behavior. These behavior changes were described respectively as disagreeable, mean, nervous, silly, or pugnacious. Phenobarbital therapy had to be stopped in nine instances (8%).

Read before the Section on Nervous and Mental Diseases at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

[1] Christian, H. A., and Mackenzie, J., Editors: Oxford Medicine, New York Oxford University Press, 1932, Vol. 4, p. 502 (Supp. 17).

DIPHENYLHYDANTOIN

Diphenylhydantoin was given to 92 patients. Eleven of these were receiving this drug when first seen in the clinic, and the number of seizures on this medication was used as the baseline for the effectiveness of other anticonvulsants. Complete relief from seizures was obtained in 19 patients (20%) and partial relief in 25 patients (28%). Seizures were aggravated in 20 instances (22%). This aggravation may have been due in part to the administration of ascorbic acid in conjunction with the diphenylhydantoin in the majority of patients. In contradistinction to phenobarbital, with which the best results were obtained in those patients who had not had previous treatment, diphenylhydantoin was as effective in the 58 habitués of the clinic as in the 21 neophytes. Unlike phenobarbital also, diphenylhydantoin proved the most effective in the jacksonian and psychomotor types; the least in the minor-mixed and petit mal types. Toxic reactions included encephalitis (1 case), psychotic behavior (2 cases), and staggering, hypertrophy of the gums, mental confusion, dermatitis, vomiting or hirsutism (27 cases). Symptoms necessitated discontinuing the diphenylhydantoin in 14 cases (15%).

MEPHOBARBITAL

Mephobarbital was prescribed for 5 patients alone, and for 64 with other anticonvulsants, (a total of 69 patients). When given alone, 3 patients were controlled and 2 were made worse; in conjunction with other anticonvulsants, 6 patients had no seizures in six months, 20 had fewer, and 14 had more. In all, 13% of the patients were controlled and 29% had a reduction of seizures by at least one-half. In 16 instances (23%) the seizures were increased. Classified according to seizure type, results were slightly less effective in the jacksonian, but rather evenly distributed throughout the others. Previous medication seemed a factor. Patients who had been on phenobarbital with more or less success for a number of years progressed well on mephobarbital. Toxic symptoms included sleepiness, "dopeyness," fatigability, and dermatitis. The drug had to be stopped in 11 patients (16%).

TRIMETHADIONE

Trimethadione was prescribed for 44 patients. In the two instances when it was given alone, one patient with autonomic seizures was controlled, and the other with a minor-mixed type was made worse. In all, complete suppression of seizures was achieved in 3 patients, and a reduction by over one-half in 13 patients, summing up to 36% of patients improved. In 14 persons (32%) the seizures were augmented. Surprisingly, of the 14 patients exhibiting petit mal attacks, only 4 (28%) were helped, and the same number, 4, were made worse. Whereas, of the 20 patients with grand mal attacks, 9 (45%) were helped, as well as 9 made worse. However, the comparison of the total number of seizures experienced by the patients in the six months' treatment with trimethadione is more in keeping with previous reports. The 44 patients revealed a 40% decrease in the number of petit mal seizures, but only an 18% decrease in the number of grand mal seizures. Narcolepsy or excessive sleepiness which was not due to medication was lessened in three patients. In general, the jacksonian, psychomotor, and minor-mixed seizures were not much affected. Toxic manifestations included delirium, neutropenia, dermatitis, gastrointestinal disturbances, malaise, dizziness, and glare phenomenon, and were sufficiently severe to warrant cessation of medication in 12 patients (27%).

METHYLPHENYLETHYL HYDANTOIN

Methylphenylethyl hydantoin was given to 41 patients, to 3 without other medicaments. Four patients, in one of whom it was the sole drug administered, were freed from seizures, and 12 partially freed, a total of 39%. Nine patients (22%) became worse. Best results were obtained with the jacksonian and petit mal seizures; the worse with the minor-mixed type. One psychomotor patient was made better, one worse. One man who had no seizures on phenobarbital and diphenylhydantoin so long as he abstained from liquor found that when taking methylphenylethyl hydantoin as well he could indulge in an occasional drink. Toxicity was manifested by hallucinations (1 case), febrile reactions with agranulocytosis (4 cases, 2 of which were severe), and weakness, drowsiness, or dermatitis (11 cases). The drug had to be discontinued in 9 instances (22%).

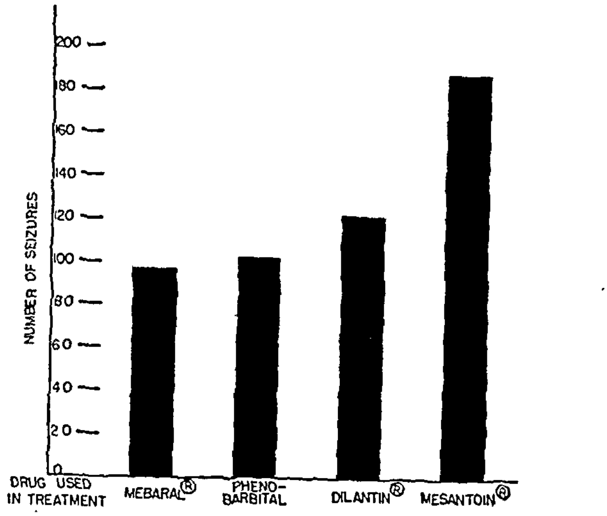

Fig. 2.—Number of grand mal seizures occurring during six months' treatment of 14 patients with epilepsy.

AMPHETAMINE

Amphetamine sulfate was administered to 40 patients, in all instances in association with other anticonvulsants. It was usually prescribed because of the excessive drowsiness engendered by the anticonvulsants or because of behavior disorder. In 4 patients the seizures were completely relieved, and in 5 they were reduced, making a total of 22% of patients assisted. In 16 (40%), however, the seizures were aggravated. Behavior was better in six patients, but more offensive in three. Control of seizures occurred only in the grand mal and petit mal types. Undesirable side effects included insomnia, anorexia, loss of weight, nervousness, irritability, moodiness, and impotency. The drug was stopped because of these in six patients (15%).

"NUVARONE"

"Nuvarone," an experimental drug furnished through the courtesy of the Abbott Laboratories, was tried on 16 patients. Seizures were lessened in eight and increased in three. The two patients with jacksonian seizures were helped. Unfortunately, however, toxic manifestations necessitated discontinuing the drug in 10 patients (62%), although this was done with regret since several of the patients were progressing well. Toxic reactions included depression of the red or white blood cells in three, dermatitis or itching in five, diarrhea in one, and drowsiness or unclear mental state in three.

RESULTS

Complete control, defined as no seizures or auras within a period of six months, was achieved in only 65 patients (30.6%). Of these, 25 received a combination of phenobarbital and diphenylhydantoin, 20 phenobarbital alone, 5 diphenylhydantoin alone, 4 a combination of diphenylhydantoin and mephobarbital, 2 methylphenylethyl hydantoin alone, and 1 mephobarbital alone. The remainder took combinations of the above, and also amphetamine in 6 instances, trimethadione in 5, and glutamic acid hydrochloride in 1. One patient with hypoglycemia stopped having seizures only when he changed to a strict high-protein low-carbohydrate diet. Patients with psychomotor seizures did the best, with 5 out of 13 controlled; those with the minor-mixed type did the worst, with only 4 out of 39 (or about 10%) becoming free from seizures. In between were the 29 patients exhibiting jacksonian seizures, of whom 4 (14%) were freed from seizures, and the 37 patients with petit mal seizures, of whom 9 (24%) were controlled.

Etiology proved a factor. In 13 (52%) of the 25 post-traumatic cases, the seizures were suppressed, whereas in less than 20% of the patients with organic lesions other than trauma or infection were the seizures noticeably decreased. As would be expected, the most successful results were found in the 6 to 20-year-old group, the worst in the patients over 50. Unexpectedly, to me at least, the length of time over which the patient had had seizures did not play a significant part in the result.

COMMENT

In the series of 212 patients, 27 took only one anticonvulsant, and 33 took over five. Since it is the general practice at the clinic to start patients on phenobarbital, it was felt that the other anticonvulsants had been tried on cases more resistant to therapy and therefore wer not being fairly evaluated. To obviate this element, co parison was made of the number of grand mal seizure occurring per six-month period in 14 patients who received phenobarbital, diphenylhydantoin, methylpheny ethyl hydantoin and mephobarbital (Fig. 2). Duri trial with mephobarbital, the 14 patients had a total o 96 grand mal seizures in a period of six months; wi phenobarbital, 101; with diphenylhydantoin, 121, an with methylphenylethyl hydantoin, 187. However, sin it has been my practice to pyramid anticonvulsants, gi ing them together instead of substituting one for anothe I wonder if this evaluation is fair to phenobarbital an diphenylhydantoin.

The total number of seizures occurring during the s months preceding and during medication with each ant convulsant was next computed for each type of seizu (Table). This revealed certain dissimilarities. For i stance, the minor-mixed seizures were alleviated phenobarbital when considered from the standpoint patients helped, but in actual numbers they were au mented. In treatment with diphenylhydantoin the opp site happened. These discrepancies, however, we owing to a few patients with such an excessive numbe seizures that their improvement or relapse oversl owed the results obtained in the other patients who much fewer seizures. The total number of seizures cl fied the findings with trimethadione. Although more tients were completely freed from grand mal attacks t from petit mal attacks, there was a far greater supp sion of petit mal seizures (40%) than of the grand (18%).

In reviewing the records of the patients, some of wl have been followed over 12 years, I was impressed certain incongruities. Thirty-five patients either impro or relapsed without demonstrable change in their he or environment, and certainly without correlation medication. In some patients specific anticonvuls produced at one time a toxic reaction or increase of s ures, but at a later date had no untoward effect greatly benefited the patient. This occurred in one pati at least, with practically all of the anticonvulsa Rarely, the opposite happened: one patient who been controlled by phenobarbital and diphenylhydan for nine years developed a phenobarbital dermatitis.

Because emotional stress is known to precipitate s ures, it was felt that emotional imbalance in the pati might explain the incongruities. The patients were viewed, therefore, for any gross manifestation of

Comparison of Total Number of Seizures in Six-Month Period Before and After Administration of Anticonvulsant

	Type of Seizure														
	Grand Mal			Minor-Mixed			Jacksonian			Petit Mal			Psychomoto		
Drug	No. of Cases	Before	After	No. of Cases	Before	After	No. of Cases	Before	After	No. of Cases	Before	After	No. of Cases	Before	A
Phenobarbital	76	873	879	9	289	445	7	109	47	8	942	227	8	50	
Diphenylhydantoin (dilantin®)	65	715	553	19	1,207	201	11	384	126	2	21	31	3	63	
Methylphenylethyl hydantoin (mesantoin®)	26	265	309	4	40	74	4	71	12	7	52	21	2	84	
Mephobarbital (mebaral®)	40	672	361	6	98	59	5	110	72	6	716	362	2	48	
Trimethadione (tridione®)	14	126	104	7	270	214	5	83	44	11	259	155	2	74	
Amphetamine (benzedrine®)	29	303	449	2	44	19	1	26	79	7	180	293	2	64	

balance. Of the 212 patients, 41 (19%) had apparent personality deviations. There were six patients with chronic alcoholism, seven who had attempted suicide, one suicide, and one drug addict. The 65 controlled patients included 11 (17%) with emotional disturbances, relatively almost as many emotionally disturbed patients as in the total group. However, of the 35 patients who improved or relapsed without apparent reason, 13 (37%) exhibited abnormal personality reactions. Since time did not permit proper psychiatric evaluation, no conclusion can be drawn, but the above suggests that manifest emotional imbalance is not a factor in perpetuating seizures but may lead to ambiguous results in their treatment.

SUMMARY

In this series of 212 patients, phenobarbital produced the highest per cent of controls and the lowest incidence of toxic manifestations. Mephobarbital (mebaral®) and diphenylhydantoin (dilantin®) rivaled each other both in effectiveness in alleviating the seizures, and in their toxicity in aggravating the seizures or in causing unfavorable side actions. Methylphenylethyl hydantoin (mesantoin®), amphetamine (benzedrine®) sulfate, and trimethadione (tridione®) controlled or helped some patients but made a greater number of them sick. "Nuvarone" proved of aid but hazardous, with a 62% incidence of toxic manifestations.

5636 Berkshire Dr.

EPIDEMIOLOGY OF UPPER RESPIRATORY TRACT DISEASES

Richard G. Hodges, M.D., Cleveland

In this portion of the panel I shall discuss the epidemiological aspects which have a bearing on the therapy and prevention of upper respiratory tract diseases. Many efforts have been made to prevent upper respiratory tract diseases by immunization and by attempts to break the chain of transmission. The purpose of this paper is to show, on epidemiological grounds, why these attempts have failed and to indicate the points that must be understood before actual prevention can be achieved.

First, it is necessary to define what is meant by upper respiratory tract disease. I shall include under this term all the nonspecific infections that involve the upper respiratory tract and recognize the fact that in a large proportion of these illnesses the lower respiratory tract is also involved. The scope of the problem is illustrated in the first table, which shows the experience of a group of normal families which my colleagues and I have had under close observation over a period of several years for the occurrence of all illnesses. Of the 1,040 attacks observed during 1948, less than 3% could be assigned a definite etiology.[1] Since this is a panel on therapy, it is worth pointing out that the policy of treating all respiratory symptoms with sulfonamides or antibiotics would result in a useless waste of 95% of the drugs administered.

A major stumbling block in the understanding of this group of illnesses is the inability to fit them into any meaningful classification. Etiological studies are at present confined to the use of human volunteers. By this method it has been possible to demonstrate that at least two different types of presumably viral agents exist. But the method is so difficult that it has not been possible to investigate the probability that a whole range of agents, or strains of agents, enter into the etiology. Attempts to make a clinical classification are equally unsatisfactory. In a given family episode, which is presumably caused by a single agent, the various members demonstrate a wide range of clinical severity and anatomical localization of symptoms. This variability in host response, plus the probable existence of multiple etiological agents, results in a spectrum of illness rather than an orderly arrangement of subdivisions. However, by studying the behavior of the whole group it is possible to make certain pertinent observations.

The first epidemiological feature is the consistency with which the population is attacked year after year. This has been the experience of the population of families mentioned previously and has been observed by others.

It is possible to place some interpretation on this consistency. It is evident that any natural immunity conferred must be of extremely brief duration. Otherwise a constant incidence of six attacks per person per year would not occur. From this it follows that even though it should become possible to induce artificial immunity the procedure would have to be repeated at such frequent intervals that its feasibility would be very doubtful. There is a chance, but a very long one, that each of the six attacks per year is due to a different agent which establishes a relatively good homologous immunity. Should this be true, one would then be faced with all the problems of a polyvalent immunizing agent, a dilemma which is well illustrated by the present status of influenza immunization. Therefore, I think that it can at present be said that the hopes for immunization against upper respiratory tract diseases are small. Even less hopeful are the so-called "cold shots," since the ingredients therein have never been proved to have anything to do with the pathogenesis of common colds.

TABLE 1.—*Incidence of Illnesses in a Group of Normal Families*

Diagnosis	No. Illnesses	% of Total
Undifferentiated respiratory diseases.....	975	93.7
Streptococcal sore throat................	14	1.4
Nonstreptococcal exudative pharyngitis.	42	4.0
Primary atypical pneumonia............	7	0.7
Pneumococcal pneumonia................	2	0.2
Total................................	1,040	100.0

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Read in the Panel Discussion on the Therapy of Infectious Diseases before the Section on Pediatrics at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] Dingle, J. H.; Badger, G. F.; Feller, A. E.; Hodges, R. G.; Jordan, W. S., Jr., and Rammelkamp, C. H.: A Study of Respiratory Infections in Families, Tr. A. Am. Physicians 62:99, 1949.

Another very constant feature of upper respiratory tract diseases is its seasonal occurrence. It is usual for a summertime low incidence to be followed by a very sharp autumnal rise. After this a high but irregular plateau of incidence is maintained until late spring, at which time a sharp decline occurs.

Two factors are apparently at work to cause the sharp autumn peak in incidence. The first is an increased susceptibility of the population. Decreased contact with upper respiratory tract infection appears to lower the resistance at the time of next exposure. This is a constant experience of explorers and others who spend two months or more out of contact with organized society. Return to civilization coincides with the acquisition of respiratory disease. The same has been shown to occur on a grander scale in isolated communities. Winter on the Island of Spitzbergen is characterized by a freedom from respiratory ills; the arrival of the first ship in the spring is followed by an epidemic wave. I would surmise that the relative dispersion of our populations in the fresh-air environment of summer gives rise to the same phenomenon. There thus exits the paradox that in order to avoid becoming susceptible one must have frequent infections.

The second factor appears to be the recongregation of the population in school and in other closed spaces. The autumnal rise in incidence is coincident with this environmental change, and the high incidence prevails until the advent of truly warm weather. The exact path of transmission that is followed in closed environments, however, is still obscure. It is easy to say that the infection is air-borne, but this is not the whole explanation. For example, it has been shown that certain procedures, such as the use of ultraviolet light, aerosol sprays, or the oiling of floors and bedding, will decontaminate the air of bacteria and certain viruses. And there is some evidence that the application of those measures to hospital wards will reduce cross infection. However, the attempts to apply air decontamination to environments in which normal activity is taking place, such as schools or military barracks, have met with uniformly disappointing results. Other evidence that the infectious agents do not circulate uniformly through the atmosphere of closed environments is found in the spread of upper respiratory tract disease through families. Young children acquire upper respiratory tract diseases much more readily from one another than they do from older children or from adults. Mothers are more readily infected by children than are fathers. Thus mere presence in the household atmosphere is not the whole story; the amount and intimacy of close physical contact appears to be another factor. In view of the relative failure of air decontamination, attempts to break the chain of transmission must begin with a more thorough elucidation of this factor of close contact.

There is one procedure that actually does appear to reduce the incidence of upper respiratory tract diseases, and that is the process of growing older. It is a familiar fact that adults suffer less than do children, but the effect of age is much more specific than that. The most susceptible time appears to be in the second year of life, and after that there is a steady increase in resistance. Once again, this epidemiological feature offers little toward the prevention of upper respiratory tract ills.

In summary, the main epidemiological features of upper respiratory tract diseases fail to indicate that any effective methods of control are immediately available. Future advances will depend on (1) the isolation of the agent or agents so that their behavior can be exactly studied, (2) determination of the manner in which the agents actually spread from one person to another, and (3) understanding of the beneficial effect of age, with the hope that this phenomenon can be produced artificially.

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SELECTION OF ANTIMICROBIAL AGENTS BY LABORATORY MEANS

Earle H. Spaulding, Ph.D.
and
T. G. Anderson, Ph.D., Philadelphia

The advent of antibiotic therapy had a profound effect on the diagnostic microbiological laboratory. Technical procedures, such as pneumococcus typing, became useless as therapeutic tools, and for routine purposes it was no longer necessary to identify micro-organisms beyond the point of determining that they did or did not belong to a pathogenic species. On the other hand, a new technique of prime importance has been developed—i. e., the antibiotic susceptibility test. With it the laboratory can give valuable aid to the clinician in the selection of the most effective chemotherapeutic drug for his infectious patients. The present discussion deals with the use and value of this procedure.

The foregoing statements are not intended to imply that bacteriologic specimens need to be collected in all cases. As any clinician knows, most mild and uncomplicated acute infections respond promptly to empirical administration of any one of several antibiotics in general use. On the other hand, certain types of cases require bacteriologic guidance if the therapeutic program is to be maximally effective. These fall into three classes: (1) fulminating infections requiring hospitalization; (2) cases which fail to respond after 72 hours of routine chemotherapy[1]; (3) infections which relapse, especially if there is a change in the character of the infection suggesting alteration of the bacterial flora.

From the Department of Microbiology, Temple University School of Medicine and Hospital.

Read in the Panel Discussion on the Therapy of Infectious Diseases before the Section on Pediatrics at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] Furstenberg, A. C.: Antibiotics in the Treatment of Diseases of the Ear, Nose and Throat, Ann. Otol. Rhin. & Laryng. 58:5, 1949.

The diagnostic microbiologic laboratory is now being used more than ever. The reason for this appears to be an increasing recognition by the clinician of the value of antibiotic susceptibility tests. As long as penicillin was the only antibiotic available, bacteriologic study served no purpose except to establish that an infectious process was present. However, the successive introductions of streptomycin, bacitracin, chloramphenicol, aureomycin, and terramycin created a state of confusion because of the overlapping spectra of these antibiotics and because of other factors which will be discussed later. As a result, the clinician is now faced with the problem of having to select the proper antibiotic to use in each individual case which falls within one of the categories previously mentioned. Although cost, ease of administration, and risk of undesirable side reactions must be considered in making this choice, the determining factor should be the susceptibility of the infecting micro-organism. Because the in vitro susceptibility test is a practical procedure, it constitutes a valuable and often indispensable aid in the successful therapy of bacterial infections, and its performance is now a primary function of the diagnostic laboratory.

It is impossible in many instances to select the proper antibiotic on the basis of the nature of the infection. Pneumonitis, meningitis, surgical infections, and other conditions may be caused by a variety of micro-organisms with very different chemotherapeutic susceptibilities. Even though the identity may be known, it is not always possible to say that penicillin or some other antibiotic is the one of choice. It is true that certain delicate bacterial types are highly susceptible to most chemotherapeutic drugs. Group A hemolytic streptococci, pneumococci, and gonococci are examples. In contrast, the hardier varieties, such as staphylococci and various gram-negative bacilli, not only are more resistant as a group, but the individual strains within a single species may show striking and unpredictable variation in their susceptibility to any one drug.[2] This means that the most active antibiotic for four separate strains of Pseudomonas may in each instance be different. The same situation exists with Proteus bacilli, enterococci, Hemophilus pertussis, salmonellae, and coliform bacilli.

Furthermore, the susceptibility status is constantly changing. Since each bacterial population is heterogeneous in that the individual cells within it vary in resistance to a given drug, the result of exposure to that antibiotic may be the destruction of the more susceptible organisms but the survival of the more resistant mutants. The rapid development of complete resistance to streptomycin is well known. Penicillin, on the other hand, is remarkably free of this undesirable property, although there is some evidence [3] that a general bacterial resistance is developing slowly. An exception with respect to penicillin is the Staphylococcus. Because some strains produce penicillinase, an enzyme-destroying penicillin and associated with resistance, these have been selected out over the years, with the result that the proportion of resistant staphylococci isolated from hospitalized patients is reported to have risen from 14% in 1946 to about 60% in 1948.[4] It is as yet too early to predict the rate at which micro-organisms will change in their behavior toward the newer antibiotics, but recent reports [5] point toward a gradual decrease in susceptibility. Under these circumstances it would appear that a chemotherapeutic program based on empirical clinical trial may be extremely hazardous and that the need for laboratory testing will continue to increase as more antibiotics become available.

METHOD FOR TESTING SUSCEPTIBILITY

In order to be practical for routine use, susceptibility tests must be carried out on the primary culture so that there is no delay beyond that required for incubation. Such a test is the disk method which was developed in this laboratory in 1947 [6] and since simplified so that it can be performed by any laboratory capable of culturing clinical material. As originally described, a small filter-paper disk is immersed in a standard antibiotic solution and placed on the surface of a blood agar plate immediately after inoculation with the specimen. After overnight incubation the plate is examined for the presence of bacterial colonies, and the susceptibility of each type of colony is estimated by measuring the diameter of the clear zone of inhibition surrounding the disk (Fig. 1). The larger the size of the inhibitory zone, the greater is the degree of susceptibility. It is possible to test five antibiotics simultaneously, as shown in Figures 1 and 2. As routine procedure, however, we limit primary culture tests to two drugs, penicillin and aureomycin. If the routine test reveals pathogenic species resistant to both these drugs, representative colonies are subcultured to a second blood agar plate on which are placed disks containing antibiotics not previously tested.

TABLE 1.—*Preparation of Standard Antibiotic Solutions for Paper Disk Susceptibility Tests*

	Concentration per Cc.	Diluent
Aureomycin........................	500 γ	Distilled water
Bacitracin........................	75 units	Isotonic sodium chloride solution
Chloramphenicol..................	700 γ	Distilled water
Dihydrostreptomycin..............	500 γ	Distilled water
Neomycin..........................	300 units	Distilled water
Penicillin G......................	50 units (30 γ)	Distilled water
Terramycin........................	500 γ *	Distilled water

* As currently supplied by the manufacturer, this product assays at 900 to 925 γ per milligram of powder.

The concentrations of the standard antibiotic solutions used in this laboratory are listed in Table 1. They were chosen in most instances after rather extensive comparison with the results of tube dilution and agar plate tests and after a trial period of observation for clinical correlation. However, these figures will no doubt be changed from time to time as more experience is acquired. It is likely, for example, that the concentration of the penicillin solution should be increased to 75 or 100 units (45 or 60 γ) in keeping with the present tendency to employ increasingly larger therapeutic doses. Standard solutions are prepared from concentrated stocks which have been stored in the frozen state. It is our practice to use fresh tubes of penicillin and aureomycin each day, but this is not necessary with the other antibiotics which show little loss in activity during one-week's refrigeration.

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[3] Davison, F. W.: Antibiotics and Sinus Infections, Laryngoscope **60**: 131, 1950.

[4] Barber, M., and Rozwadowska-Dowzenko, M.: Infection by Penicillin-Resistant Staphylococci, Lancet **2**: 641, 1948.

[5] Meads, M.; Harris, C. M., Haslam, N. M., and Cline, W. A.: Chloramphenicol-Fastness: Development in Vivo and Experimental Production in Vitro, J. Clin. Invest. **29**: 1474, 1950. Altemier, W. A., and Culbertson, W. R.: Chloramphenicol and Aureomycin in Surgical Infections, J. A. M. A. **145**: 449 (Feb. 17) 1951.

[6] Bondi, A., Jr.; Spaulding, E. H.; Smith, D. E., and Dietz, C. C.: A Routine Method for the Rapid Determination of Susceptibility to Penicillin and Other Antibiotics, Am. J. M. Sc. **213**: 221, 1947.

The principal disadvantage of the original procedure is that each laboratory must prepare its own standard solutions. This is a time-consuming step and one which requires some understanding of the physical properties of the different antibiotics if accuracy is to be attained. Therefore, an important modification of this technique was the commercial development of dried disks and tablets.[7] These may be transferred directly from the manufacturer's vial to the surface of the freshly inoculated plate and so are admirably suited to the needs of the small hospital laboratory.

INTERPRETATION OF DISK SUSCEPTIBILITY RESULTS

The disk method was designed for simplicity and not for a high degree of accuracy. Therefore, the results obtained in most laboratories are only indications of the susceptibility level. Although this appears to be adequate for all practical purposes, many users translate the disk zone results into a specific number of units or micrograms per cubic centimeter of susceptibility. In this connection it may be well to point out that under the controlled conditions of our laboratory the results of triplicate tests may vary up to ± 25%.

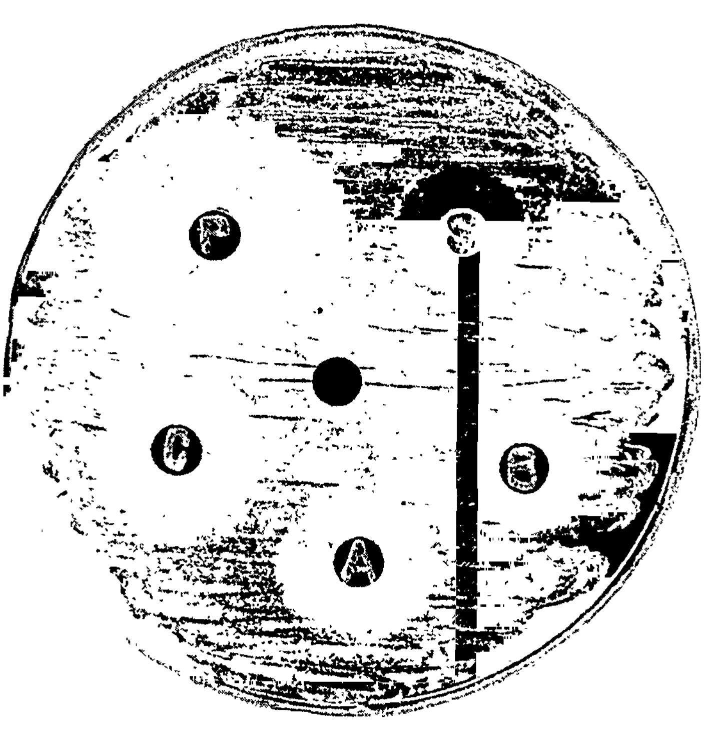

Fig. 1.—Antibiotic disk tests with a pure culture of Staphylococcus. P, indicates penicillin; S, dihydrostreptomycin; B, bacitracin; A, aureomycin; C, chloramphenicol. Control (isotonic sodium chloride) disk is in the center. This organism is very susceptible to penicillin and moderately susceptible to the others.

Proper interpretation of the results requires an understanding of the variable factors. The standard antibiotic solutions must be prepared accurately. The paper disk should be removed from the antibiotic solution with fine-pointed alcohol-flamed forceps and given one vigorous flip before it is placed on the agar plate. Another variable of considerable importance is the composition of th culture medium. Our data are based on the use of trypticase soy agar containing 5% horse blood, which we eminently satisfactory, but it must be emphasized that other types of media may give quite different values. Although the use of a standard medium is highly desirable, the users of commercial disks should follow any recommendations which may accompany them. Finally, a most important factor is the amount of growth present in the culture. In general, the size of the inhibitory zone is inversely related to the number of colonies present. It can repeatedly be demonstrated that when an undiluted inoculum is compared with a 1:100 dilution made from it, the culture plate containing the latter will show significantly larger zones and often the presence of a small zone which is absent in the undiluted culture. Thus, an intelligent interpretation of the disk results must allow for the effect of these variables. If due allowance is made the results justify classification of any bacterial culture as (*a*) very susceptible, (*b*) moderately susceptible, (*c*) slightly susceptible, or (*d*) resistant.

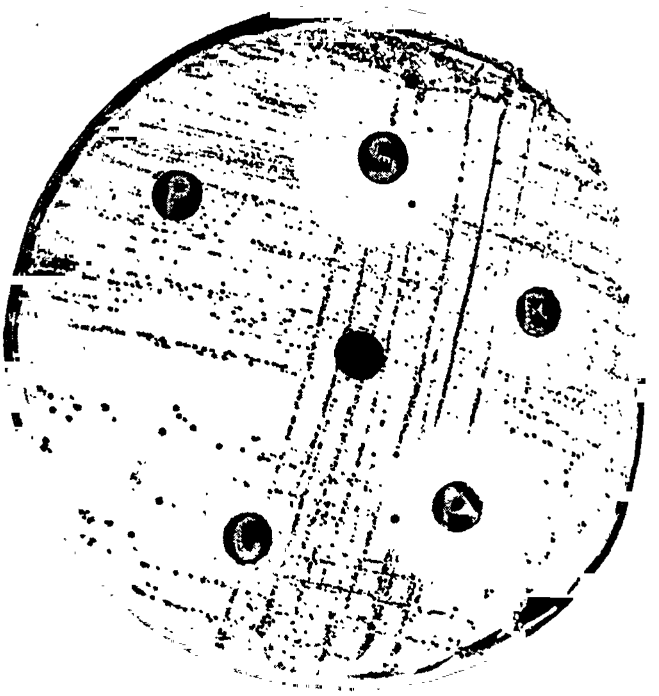

Fig. 2.—Antibiotic susceptibility tests with a nasopharyngeal culture containing a coagulase-positive Staphylococcus (large colonies) and a Group A hemolytic Streptococcus (small colonies). Identity of disks is same as in Fig. 1. The Staphylococcus is resistant to penicillin chloramphenicol, slightly susceptible to bacitracin, very susceptible to aureomycin. Note streptomycin zone containing resistant mutant colonies indicating that this drug should not be used. The Streptococcus is very susceptible to aureomycin, moderately susceptible to penicillin and dihydrostreptomycin, slightly susceptible to bacitracin and chloramphenicol. Aureomycin is the antibiotic of choice.

The clinician may well ask the meaning of disk susceptibility classifications in terms of dosage. For example, is 2 gm. a day of aureomycin adequate for an infection due to a moderately susceptible organism? This question cannot be answered completely, since the nature and severity of the infection must be considered. However, the figures in Table 2 show the relationships which exist between zone sizes observed with moderately susceptible organisms and the minimal inhibitive concentration as determined by other in vitro methods. Since a daily dose of 2 gm. of aureomycin usually produces a blood level within the susceptibility range listed in Table 2, that dosage program would appear to be satisfactory. Very susceptible organisms generally require only half as much, and those reported as slightly susceptible may need at least twice that amount. Here aureomycin is used as an example, but in our institution the same working rule is being satisfactorily applied to the other antibiotics.

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[7] Difco Laboratories, Detroit 1, Mich.; Boyle and Co., Los Angeles 33, Calif.; Commercial Solvents Corp., Pharmaceutical Division, 17 E. 42nd St., New York 17.

COMBINED THERAPY

Bacteria which appear to be resistant or only slightly susceptible in vitro pose special problems of interpretation. As a general rule, those which fail to show any zone in the disk test are not likely to respond clinically. Penicillin, however, is an important exception. The larger doses—3 to 12 million units a day—currently being used in the treatment of subacute bacterial endocarditis and many severe infections produce blood levels beyond the ange of the standard penicillin solution listed in Table 1.

Slightly susceptible bacteria require either large doses of a single drug or moderate doses of two or more drugs in combination. If only one of seven antibiotics under test shows in vitro activity, there would seem to be no choice but to use large doses of that one. There is no evidence to indicate that an organism slightly susceptible to one drug is more effectively inhibited on the addition of another which has no in vitro activity. On the other hand, strains of Pseudomonas, Proteus, Aerobacter, and enterococcus are often reported as being slightly susceptible to two or three different antibiotics. In such instances, it would seem advisable to administer a combination of those drugs rather than increase the dosage of any one of them. Supportive clinical evidence for this view is beginning to appear,[8] and the explanation may lie in the in vitro observations of Jawetz and others,[9] which demonstrate that two antibiotics which are merely bacteriostatic when present alone may have bactericidal activity in combination.

VALIDITY OF IN VITRO RESULTS

Providing the causative organism has actually been isolated, the results obtained by the disk method correlate well with clinical experience. This fact is most clearly shown with infections which have been refractory to prolonged empirical therapy. In most instances the significant bacteria are found to be resistant to the antibiotic previously employed and disappear after administration of the drug selected on the basis of the susceptibility tests. The timely article by Jawetz and Marshall [10] illustrates well the excellent agreement which may be observed. Another situation in which susceptibility tests are particularly useful is in the treatment of infections which relapse after definite clinical improvement. In a majority of instances the primary incitant was susceptible to the antibiotic employed and has disappeared, but it has been replaced by a different and resistant type of micro-organism which often produces a change in the character of the infection. Thus, it can be seen that the susceptibility test is useful as a guide to the initial therapeutic approach and as a safeguard during treatment.

As might be expected, discrepancies do occur between in vitro results and the subsequent clinical response. Many factors in the host, such as absorption, diffusion, and excretion rate, may operate to diminish or increase in vivo effectiveness. Although the explanation in individual cases is sometimes obscure, it seems worthwhile to point out certain factors which are known to be responsible for clinical failure in a case from which only susceptible bacteria were reported. The reason is likely to be one of the following: the causative organism was not among those isolated; the dosage was inadequate; resistant bacterial mutants have grown out; the original susceptible flora has been replaced by a more resistant one; there were mechanical or anatomical barriers limiting access of the drug to the site of infection, such as a walled-off abscess or the valvular vegetations of subacute bacterial endocarditis.

Sometimes the reverse situation is observed, especially with penicillin. Bacteria which appear to be resistant to this drug by the disk method may be rapidly destroyed in the patient's tissues, as evidenced by a clinical cure and the disappearance of the offending bacteria from subsequent cultures. Such observations in our experience have become more frequent with the gradual adoption of larger doses of penicillin. In this connection it should be pointed out that the disk method measures only the bacteriostatic and not the bactericidal concentration. Unlike most other antibiotics in general use, penicillin is rapidly bactericidal for many types of bacteria. Therefore, if, as Eagle believes,[11] the prompt clinical cures frequently observed with the use of this drug are due to its direct killing effect, a dosage which produces a tissue concentration only slightly above that found to be inactive in vitro may be strongly bactericidal. Obviously, the ideal susceptibility test for penicillin would measure not only inhibition but also killing power. Such methods are available and in special instances of great value [10]; as yet, however, they are not suitable for routine application.

TABLE 2.—*Interpretation of Paper Disk Susceptibility Tests*

	Zone Diameters Shown by Moderately Susceptible Organisms (Mm.) *	Susceptibility Equivalents per Cc.
Aureomycin	10-17	2-10 γ
Bacitracin	10-20	1-10 units
Chloramphenicol	10-15	4- 8 γ
Dihydrostreptomycin	10-15	4-20 γ
Neomycin	10-20	4-10 units
Penicillin G	10-20	0.6-2 units
Terramycin	10-15	2- 8 γ

* Applies only to use of 6.5 mm. Whatman No. 2 paper disks.

Finally, it is well to keep in mind the fact that microorganisms are not ordinarily destroyed in vivo by bacteriostatic drugs. Their role in clinical cure is to inhibit growth and thus increase the effectiveness of phagocytosis and other immune mechanisms. Obviously, in vitro tests do not include the immunological factor which always operates in favor of the patient.

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[8] Kirby, W. M. M.: Recent Trends in Antibiotic Therapy, J. A. M. A. **144**: 233 (Sept. 16) 1950.

[9] Jawetz, E.; Gunnison, J. B., and Coleman, U. R.: The Combined Action of Penicillin with Streptomycin or Chloromycetin on Enterococci in Vitro, Science **111**: 254, 1950.

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SULFONAMIDE TESTING

Only antibacterial drugs which are soluble in water can be tested by the disk method. This requirement eliminates most sulfonamides, except gantrisin® (3,4-dimethyl-5-sulfanilamido-isoxazole), and certain antibiotics such as tyrothricin. Sulfonamide susceptibility can be determined, however, by the usual broth dilution method. But this must be carried out with pure cultures and is practical only in cases of chronic or subacute infections in which the time element is not important. Furthermore, the results are notoriously unreliable and frequently fail to correlate with the clinical response. When dealing with infections due to gram-negative bacilli which are only slightly susceptible to the available antibiotics, sulfonamide testing is indicated, with the possibility in mind that combined antibiotic-sulfonamide therapy may offer the best approach. Otherwise, there seems to be little need for this technique.

COMMENT

The practical laboratory procedures for testing antibiotic susceptibility are almost entirely limited to bacteria. Rickettsia, and viruses cannot be grown in vitro, and of the fungi only the Actinomyces are significantly inhibited by the antibiotics now available. Nor has mention been made here of the methods used for determining susceptibility of tubercle bacilli to chemotherapeutic agents. Although practical techniques are available f doing this, they are not carried out on blood agar pla or by the disk method, which is the basis of the prese discussion.

The diagnostic microbiologic laboratory will undoub edly continue to play an expanding role in the manag ment of infectious disease. As the number of useful an biotics increases and the character of infections change the problem of selecting the most effective antibiotic o combination of them is likely to become even more co plex. Therefore, it seems inevitable that many clinicia who hitherto have made little use of a bacteriology la oratory will feel the need for it and that small communi hospitals which now have poor bacteriology faciliti will have to improve them.

SUMMARY

The complex problem of selecting the most effecti antibiotic drug for treatment of certain types of infe tions has been discussed from the point of view of t laboratory. The disk method for determining suscep bility to antibiotics has been briefly described and eval ated. This procedure is so simple as to be within th scope of any laboratory capable of culturing clinic material. Because the strains within a single bacteri species may vary widely and in an unpredictable ma ner, the laboratory susceptibility test is a valuable a often indispensable guide to successful treatment severe, refractory, or relapsing infections.

Temple University School of Medicine (Dr. Spaulding).

CLINICAL BASES FOR SELECTION OF PATIENTS FOR ANTIMICROBIAL THERAPY

Waldo E. Nelson, M.D., Philadelphia

One of the more important questions of the moment is whether specific antimicrobial agents should be prescribed for the patient ill with an infectious disease. The decision is complicated by a number of factors, not the least of which is the attitude of the patient or of his family. The average patient expects, and not infrequently demands, such treatment with no consideration of whether the causative agent of his particular infection is susceptible to any of the available therapeutic agents. Many physicians are currently choosing the easier course of prescribing supposedly specific therapy for practically all infections. Only when the disease is not terminated by the therapy or spontaneously in spite of it, is serious consideration given to more accurate diagnostic measures and in turn to truly specific therapy, if such is available. There are arguments to support such indiscriminate therapy, but in the opinion of most critical physicians the arguments against outweigh those in favor of it.

The decision of whether to prescribe sulfonamide and/or antibiotic therapy occurs most frequently in regard to acute respiratory infections, the majority of which do not respond to such therapy. Similar decisi must also be made in instances of arthritic, osseo nephritic, and encephalitic diseases, some of *which* not even infectious and some of which, of those wh are, are not susceptible to the available therape agents.

A number of reasons may be presented in support what may be termed indiscriminate antimicrobial thera of diseases which are presumed to be infectious in orig These include (1) quicker recovery, if the etiologi agent happens to be susceptible to the therapeutic ag prescribed; (2) fewer pyogenic complications, as well nonpyogenic ones, such as rheumatic fever and glome lonephritis; (3) unfavorable reactions to the therape agents most commonly employed are relatively few, a (4) patients or their families demand that the so-cal wonder drugs be prescribed or the physician assum that they are favorably impressed when these drugs prescribed.

The arguments against indiscriminate antimicrob therapy far outweigh those in favor of it. These inclu (1) the great economic loss, since the majority of p tients treated are either not benefited by the therapy the benefit is so minimal as not to justify the expen and effort involved; (2) unnecessary therapy has a det

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Read in the Panel Discussion on the Therapy of Infectious Diseases before the Section on Pediatrics at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

mental influence on the layman, either making him feel falsely dependent on a therapeutic agent or making him skeptic of all therapeutic endeavors; (3) indiscriminate antimicrobial therapy may lead to increased bacterial resistance to available antimicrobial agents; (4) it definitely results in a less critical attitude on the part of the physician toward diagnostic and therapeutic endeavors; (5) the increasing frequency with which prescribed antimicrobial therapy is responsible for varying degrees of suppression of the disease without cure, thus resulting in severe chronic disabling disturbances and often in a fatal outcome in cases of such infections as those of the meninges, pleura, and bones, and (6) there are no substantial data to indicate that the serious consequences of pyogenic complications cannot be avoided by appropriate therapy instituted at the onset of their clinical appearance in infections which are initially viral in origin.

Perhaps the question which should be posed at this time is somewhat as follows: "Can the busy practitioner evolve a working policy in regard to antimicrobial therapy which is in line with current knowledge and which is applicable for home and hospital patients?" The answer is undoubtedly "no" if one expects a policy which is applicable to all cases, but it is "yes" if one accepts a working basis which is infinitely more satisfactory than the policy of "treat and, if the patient does not get well, attempt to diagnose." The physician must, of course, keep in touch with new developments and adjust his working policy on the basis of the best information available at the moment.

In venturing to suggest some working rules for the management of infectious diseases, I recognize the obvious limitations. The premium is and will continue to be on good clinical judgment.

It is not possible in a paper of this nature to cover all the problems in relation to antimicrobial therapy, and no attempt is made to do so. For the sake of this discussion, separate consideration will be given to certain of the commoner acute conditions, to general policies in regard to chronic infections, to infections in the newborn infant, and to prophylactic antimicrobial therapy.

As stated previously, the most frequent decision in regard to antimicrobial therapy is related to acute infections of the upper respiratory tract. As pointed out by Hodges in another article in this issue, the majority of these disturbances are not affected by antimicrobial therapy. This is especially so of acute infections which occur in epidemics. Acute nasal infections are rarely amenable to such treatment. Infections which are located principally in the pharynx pose a much different problem from the therapeutic standpoint. It is not possible to determine by visual examination which of the exudative lesions are bacterial and which are viral in origin. The former practice of speaking of the average acute pharyngitis as a "streptococcic throat" is no longer tenable. In the isolated, severe case and in the absence of bacterial culture information, the physician is justified in treating the patient with an antimicrobial agent. When there is an epidemic in a given community, however, and the evidence from the initial cases in which treatment was given indicates that therapy is ineffective, treatment in subsequent cases of the same clinical pattern during that particular epidemic need not and probably should not be given except as there are evidences of complications.

In my judgment there is justification at the moment in treating all acute pneumonic infections in infants and small children from the outset with antimicrobial therapy. Pneumococcic pneumonias are brought under control within 24 to 48 hours after initiation of treatment, and hospitalization is rarely required. Widespread interstitial pneumonitides and bronchiolitic infections do not respond with the same degree of regularity. But because of their very serious nature in infants and small children and particularly because a limited number of them do appear to respond favorably, antimicrobial therapy should be tried in all instances. Though it is not the purpose here to discuss the problem of selection of the therapeutic agent in the individual case, it may be pointed out that experience would indicate the selection of aureomycin, chloramphenicol (chloromycetin®), or terramycin in contrast to penicillin and the sulfonamides in such cases.

Infectious disturbances of the gastrointestinal tract cannot be considered in a single category. Though the response of typhoid, Salmonella, and dysentery infections is less dramatic than is, for example, that of pneumococcic pneumonia, present evidence does indicate that they should be treated with antibiotics and/or sulfonamides. Diarrheal disturbances during the period of infancy constitute a major problem. Except in cases of identified bacterial infections, there is no clear evidence that these disturbances are affected by antimicrobial therapy. However, when the diarrheal episode does not subside within a few days, even though no bacterial pathogen is identified, treatment with streptomycin, one of the poorly absorbed sulfonamides, or the more recently introduced combination of bacitracin and neomycin may be tried by oral administration.

In cases of acute pyogenic infections of the urinary tract, it may be justified under certain circumstances to prescribe such an agent as gantrisin® (3, 4-dimethyl-5-sulfanilamido-isoxazole) aureomycin, chloramphenicol, or terramycin without cultural identification of the pathogen. In cases of chronic or recurrent infections, however, treatment should not be instituted until the infecting organism has been identified and its susceptibility to specific antibiotics determined by the method described by Dr. Spaulding in another article in this issue. Furthermore, under such circumstances thorough urographic study is indicated in every case to determine the anatomic reason for the persistence of infection.

Any infectious disease which may result in prolonged illness, produce permanent disability, or endanger life should be treated at the earliest possible moment. Included in this category are meningitis, pleuritis, peritonitis, osteomyelitis and septicemia. Whenever there are clinical indications of any of these disturbances, suitable material should be obtained for diagnostic smear and culture from the site of the infection, if possible, and from the nasopharynx and the blood. If the direct smear does not provide any clue as to the nature of the infecting organism, antibiotic therapy with or without a sulfonamide should be started immediately. Under such circumstances the initial therapeutic agents should be chosen on the basis of the probability of their effectiveness against the bacteria which are likely to invade the portion of the body involved. When the pathogen has been identified culturally and its susceptibility to the various antimicrobial agents determined, the therapeutic program should be revised accordingly.

Infections during the newborn period pose particular problems. The response of the newborn infant to infections may be quite different from that of his older sibling. Fever may be of a lesser degree and may even be absent in association with severe infections. The usual clinical manifestations of such infections as meningitis and osteomyelitis may be absent and the diagnosis missed entirely, except as such localizations are looked for by means other than physical examination. Furthermore, it is important to know that Staphylococcus aureus and a wide range of gram-negative bacilli, many of which rarely exert a pathogenic effect in older children, constitute an important segment of the bacteria which may attack the newborn infant. The infant's vulnerability to infection and relatively low capacity for resistance to established infection make it imperative that antimicrobial therapy be started promptly when infection is suspected. In no instance, however, should such therapy be started until appropriate material for smear and culture is obtained.

The place of antimicrobial therapy in the management of chronic infections is quite different from that in the management of acute infections. Rarely is there the urgency for institution of therapy, so there is time to secure appropriate material for bacterial smears and cultures. Of equal importance is the necessity to plan the therapy in relation to contemplated surgical procedures, such as those for chronic infections of the ear, sinuses, lungs, urinary tract, and the bones. In all instances every attempt should be made to prescribe therapeutic agents hich are known by in vitro cultural tests to be effective gainst the infecting organisms.

The indications for prophylactic antimicrobial therapy are quite limited. Mass prophylaxis is not indicated except perhaps temporarily in closed populations, such as in institutions to control epidemics caused by such pathogenic agents as Streptococcus hemolyticus of the beta type and meningococcus. On the other hand, current evidence indicates that recurrences of rheumatic fever can be significantly reduced by appropriate sulfonamide or penicillin prophylaxis. Similarly, such therapy may be justified under certain circumstances during the convalescent period of acute glomerulonephritis and in patients with nephrosis. Prolonged administration of aureomycin or other antibiotics in infants and children with cystic fibrosis of the pancreas is to be considered as much on the basis of therapy as on that of prophylaxis.

SUMMARY

A considerable portion of antimicrobial therapy prescribed at the present time is unnecessary. More effective utilization of these drugs will result from a more careful selection of the patient to be treated and a more accurate selection of the agent to be employed. Inadequate antimicrobial therapy may result in serious consequences by merely suppressing the pathogenic agent temporarily, thus permitting the establishment of a chronic infection which may leave permanent residual effects and even result in death. The management of infections during t newborn period requires special consideration both di nostically and therapeutically. Treatment of chronic i fections should be based on in vitro susceptibility tests the pathogenic agents and should be planned in relati to any contemplated surgical procedure.

2600 N. Lawrence St.

CLINICAL NOTES

SPOROTRICHOSIS RESPONDING TO FEVER THERAPY

Carmen C. Thomas, M.D.
Harold E. Pierce, M.D.
and
Gerald W. Labiner, M.D., Philadelphia

Sporotrichosis in its localized forms is usually read susceptible to iodide therapy. However, when widespre involvement of many viscera exists, the therapeutic pro lem is difficult because of lack of specific antibio therapy at the present time and the often-encounte resistance of this disease to iodides.

The beneficial effect of fever therapy observed in patient described opens possibilities of an added tl apeutic resource. To our knowledge this observation not been reported in the literature.

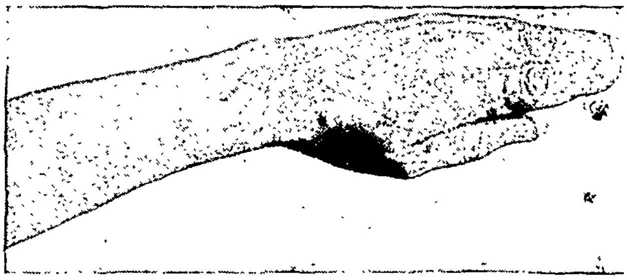

Fig. 1.—Lymphangitic sporotrichosis of the left index finger.

REPORT OF CASE

J. K., a 40-yr.-old Negro man, was first seen in consult on the eye ward where he had been admitted on March 6, 1 for treatment of a recurrent iridocyclitis.

He presented at that time an 8 by 10 mm. moist reddish s ing of the third knuckle of the left index finger. There were t or four hard, deep-seated nodules surrounding this region a series of linear nodules varying in size from 0.5 to 3.0 extending up the radial aspect of the forearm to the elbow 1). These nodules were discrete, firm and nontender. None present above the elbow or in the axillae. No lymph- enlargement was noted, otherwise.

On admission the eyes showed bilateral ciliary injection irregular pupils due to old synechiae and corneal edema diagnosis of iridocyclitis was made. Previous similar attack volving one or both eyes had occurred in 1947 and 1948, nei however, as severe as the present one or necessitating hospi zation. The patient gave a history of syphilis of uncertain d tion, which had been treated intermittently until 1949.

Dr. Albert Kligman, of the Department of Dermatology and S lology, University of Pennsylvania School of Medicine, performed agglutination studies.

From the Division of Dermato-Syphilology of the Philadelphia Ge Hospital, and the Department of Dermatology and Syphilology of Woman's Medical College of Pennsylvania.

The patient gave the following history of the hand lesion: In early February, 1950, while engaged in tearing down a wooden ice-house for lumber, he had scraped his left index knuckle. A small laceration followed by a purulent exudation appeared three to four days later. Occasionally he would express some purulent material from it. In early March several nodules developed about the site of the wound and several others appeared along the forearm. None of these caused local or systemic symptoms, and he had not thought them sufficiently alarming to warrant medical attention.

Laboratory Findings.—The hemoglobin was 14.4 gm., white blood cell count, 5,000; blood sugar, 89; the Wassermann reaction was negative, the Kline, weakly positive; the blood urea nitrogen was 8, the total protein, 6.3; agglutinations for typhoid, paratyphoid, brucellosis and tularemia were all negative; the Weil-Felix reaction was negative; culture by aspiration of the nodule, positive for Sporotrichum schencki. Biopsy of an excised nodule on March 8 showed chronic granulation tissue composed of fibrous tissue diffusely infiltrated with plasma cells, lymphocytes, and polymorphonuclear cells. Focal granulomas were present, most of which consisted of a peripheral arrangement of epitheloid type mesenchymal and giant cells with central collections of polymorphonuclear cells. There was no caseation necrosis. The section was consistent with the diagnosis of sporotrichosis.

Treatment.—For his eye infection the patient was given intravenous typhoid vaccine (five treatments in all) on alternate days, resulting in variable temperatures ranging usually from 101 to 102 F. and, for about seven hours, above 103 F. The eyes cleared rapidly after this treatment and the sporotrichosis nodules also began to recede after the eighth day of fever. The patient was anxious to be discharged, so it was decided to follow the further course of his sporotrichosis in the outpatient department without other treatment. On his discharge March 18 only two nodules were visible to the naked eye, approximately 50% regression having occurred. Cultures were still positive for S. schencki.

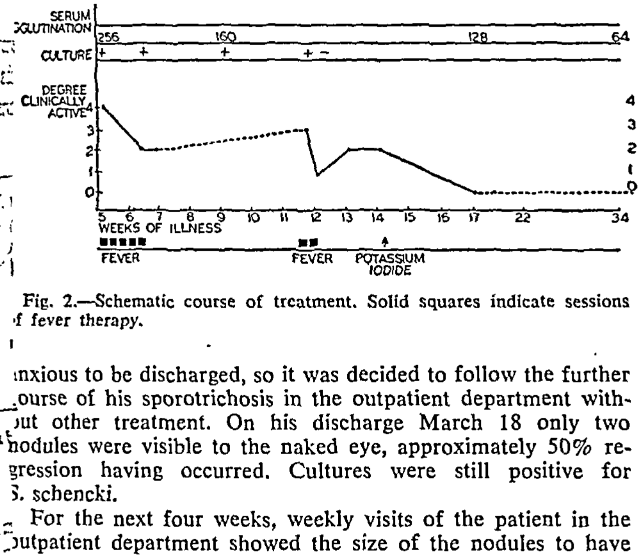

Fig. 2.—Schematic course of treatment. Solid squares indicate sessions of fever therapy.

For the next four weeks, weekly visits of the patient in the outpatient department showed the size of the nodules to have changed very little, and the cultures remained positive. On April 19 the patient was persuaded to enter the hospital again for another attempt at fever therapy. It was planned to give him three or four sessions in the Liebel-Flarsheim (Kettering) Hypertherm Fever Cabinet with a view to producing a temperature of 103 to 104 F over a period of 10 to 12 hours. He received fever treatment on April 24 and April 26 comprising, altogether, nine hours of temperature between 103 to 104 F. He then refused further fever therapy, demanding his discharge on April 27. On that date the nodules had practically disappeared to touch and culture was negative for the first time. Follow-up proved somewhat difficult, but on May 5 it was noted that some of the former wrist nodules had reappeared.

On May 12 the patient was placed on potassium iodide therapy, since slight additional progression had taken place, and his future cooperation was uncertain. Between May 12 and July 1 he took 120 gm. of potassium iodide in the form of a saturated solution. He reported that all nodules had disappeared by June 1. When he was seen on July 14 all lesions had disappeared. The patient felt well and was clinically normal when last seen on Sept. 26. The clinical course and laboratory findings are summarized in Figure 2.

SUMMARY

A 40-yr.-old man with lymphangitic sporotrichosis of the hand and forearm of five-weeks' duration showed regression of lesions after fever therapy with intravenous typhoid vaccine for an unrelated uveitis. A subsequent attempt at hyperthermia with a Liebel-Flarsheim (Kettering) Hypertherm Fever Cabinet (nine hours of temperature above 103 F) produced a dramatic decrease in size of lesions and a negative culture. Poor patient cooperation did not permit a full course of fever therapy as contemplated, and treatment was completed with oral potassium iodide therapy three weeks after the last session of fever. Skin tests with sporotrichosis vaccine were positive, with sporotrichin negative. Results of agglutination tests extending over a six-month period are recorded.

1930 Chestnut St.

PSITTACOSIS: A CASE IN CAPE COD

Earle M. Chapman, M.D., Boston

Psittacosis, or, better, ornithosis, is rarely encountered in New England. When a woman from Cape Cod entered the Massachusetts General Hospital with a fever of unknown origin of a week's duration, there was little to suggest such a diagnosis. Administration of 900,000 units of penicillin daily for the four days prior to entry had not apparently altered the course of the disease, but it may have affected later diagnostic procedures.

REPORT OF A CASE

History.—K. R. D., a woman, 61, had been leading an active life until May 31, 1950, when she felt exhausted; in a few hours severe headache and a fever of 102 F. with frequent small chills developed. The headache was frontal and occipital, and, in addition, there was generalized muscular pain, partially relieved by administration of acetylsalicylic acid (empirin®). The neck had not been stiff. After the onset the patient was continuously febrile, the temperature varying between 100.5 and 104.0 F., except after use of acetylsalicylic acid (aspirin) and acetophenetidin (phenacetin), which caused profuse sweats and decline of temperature to normal for a short time. Later she had several severe shaking chills. A slight cough produced mucoid sputum only. Moderate pain in the low anterior side of the left chest troubled her for two days before hospital entry on June 8.

The background history contributed very little, although the following data were suggestive of certain disease patterns:

1. Urgency and frequency of urination for years, at irregular intervals, had been attributed to cystitis, and intermittent treatment with sulfadiazine and silver nitrate irrigations had not effected a cure.

2. One month before the onset of fever an abscessed tooth had been extracted without any known reaction.

3. The night before the onset of fever the patient had a small pustule on the left cheek, which she punctured with an unsterilized needle.

4. The patient had been living at Falmouth, Cape Cod, where ticks abound. She had seen ticks on her body, but none attached.

Physical examination showed a feverish woman lying flat in bed in no great discomfort. She was talking freely and complaining of slight pain laterally in the left side of the chest. She coughed lightly at frequent intervals and raised mucoid sputum. The skin was clear. A few crepitant rales were heard in the low left-axillary line after she coughed. Otherwise, the examination, made by several physicians, disclosed no abnormalities.

Clinical Associate, Harvard Medical School, and Associate Physician, Massachusetts General Hospital.

Hospital Course and Investigations.—The only possible diagnosis was a fever of unknown origin. Virus pneumonia, infectious hepatitis, enteric fever, pyelonephritis, subacute endocarditis, and rickettsial disease were all suspected. The first study was a roentgenogram of the chest, which revealed an atelectatic area in the left upper lobe and also some strandlike density in this region. A small amount of fluid at the left lung base and slight atelectatic changes within the posterior basal segment of the left lower lobe were present. The radiologist suggested that bronchoscopy be done to exclude a bronchogenic carcinoma.

Aerobic and anaerobic cultures of blood were taken; blood for agglutinations for the enteric fevers were drawn, and a catheterized urine specimen was obtained. The urine showed an occasional white blood cell and two red blood cells per high-power field. Later, only Escherichia coli was found in the urine. Tuberculin diluted 1:100,000 was injected intradermally on June 9; 48 hr. later there was no reaction. The white blood cell count was low, 6,400 and 8,100 and the differential pattern normal. There was no rash, and the spleen was not palpable.

The second hospital day it seemed that ornithosis-psittacosis could well explain the clinical course of fever and the atypical pulmonary changes. The patient had not had direct contact with birds but had twice cleaned a bird-feeding station kept in the garden. An injection of sputum into mice by the intraperitoneal route was planned with Dr. John Enders at the Children's Hospital in an attempt to establish the diagnosis. On the afternoon of June 13 this was accomplished with a small amount of tenacious, grayish, mucoid sputum that had been raised that morning.

Serologic tests for Q fever, typhoid, and typhus were reported negative in all dilutions. Stool cultures were negative for pathogens. A rapid sedimentation rate continued; yet, the white blood cell count remained about 8,700 per cubic millimeter.

Chloramphenicol (chloromycetin®) therapy was begun with the administration of 0.5 gm. by mouth on June 13 (a total of 2.0 gm. was given the first 24 hr.) and continued with the administration of 1.5 gm. daily for four successive days. The temperature dropped from a level of 103 F. to normal on the morning of June 14 and remained normal until discharge from the hospital on June 23. On June 19 a second chest x-ray showed no appreciable change, and neoplasm still remained a distinct possibility.

On June 20 Dr. Enders reported that three of the 10 mice oculated had died. Numerous intracellular bodies were seen smears of the spleen, which stained red with Macchiavello's and were morphologically similar to the elementary bodies of psittacosis. Splenic tissue from these animals was inoculated into another group of mice. Death ensued within three to four days, and again the morphological findings were compatible with the diagnoses of infection with Miyagawanella psittacii. The causative agent of the infection in the mice, however, was not further identified. The four cultures of blood taken at the time of entry revealed no growth. Two of these were with added penicillinase. Sputum cultures for Mycobacterium tuberculosis were negative.

The patient continued to feel tired and listless, but on the day of discharge, June 23, the lungs were clear to percussion and auscultation. The spleen was not felt, and the cough had disappeared. The patient was urged to rest in bed at home.

Convalescence.—For the next three weeks at home the patient was fatigued and weak; on July 17 roentgenographic reexamination of the chest revealed considerable resolution of the upper left-lobe process, with only minimal evidence of residual infiltration. The findings now were suggestive of a clearing nonspecific pneumonitis. Because of continued fatigue and malaise, but without fever, another course of 1.5 gm. daily of chloramphenicol was given from Aug. 13 to 16.

On Aug. 11 it was reported[1] that blood serums drawn June 12 showed positive agglutination for psittacosis in dilution of 1:8 and for June 17 in dilution of 1:6; serums drawn June 23 and July 17 were negative.

I visited the patient at home on Aug. 31. She was tired and complained of vague aching in her muscles. This continued through September but subsided during October. The patient had always been physically vigorous and found the continued inability to get about and see visitors very trying.

The bird-feeding station was a covered platform wi glass sides. When the patient was cleaning it, the d and disintegrated bird-droppings had been brushed t ward her with a strong whisk. During the period wh infection might have occurred, a family of purple finch were frequent visitors to the station. Finches are know to be carriers of psittacosis. In the course of the summ a catbird, a robin, and a finch were found dead b showed no signs of injury. Sea gulls inhabit the near shore, but contact with gulls was unlikely. This case psittacosis in Cape Cod recalls the astute researches R. K. Rasmussen[2] in The Faroes, where he identifi epidemic alveolar pneumonia with psittacosis and relat the source of infection to the fledglings of the gull F marus glacialis.

In conclusion, certain clinical features might be e phasized: Psittacosis, by definition an avian infection communicable to man from many species of birds. T diagnosis of psittacosis is best established by the cult of the virus by inoculation of citrated blood or sput into mice.[3] The presence of only minimal clinical si of pulmonary disease, compared with the changes sho by roentgenogram, is a unique feature of this avian inf tion. Another feature is the prolonged convalesc period, despite the disappearance of fever after treatm with chloramphenicol.

330 Dartmouth St.

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1. Dr. Karl Meyer in California made the agglutination studies.
2. Dr. R. K. Rasmussen and Psittacosis in the Faroes, Foreign Le (Denmark), J. A. M. A. **145**: 104 (Jan. 13) 1951.
3. Rivers, T. M., and Berry, G. P.: Diagnosis of Psittacosis in by Means of Injections of Sputum into White Mice, J. Exper. Med. 205, 1935.

MYCOTIC ENDOCARDITIS

REPORT OF A CASE

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and
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Within the past few years, several cases of myc endocarditis have been reported, as well as one cas blood stream invasion in which treatment with sul amides and penicillin was unsuccessful.[1] Because of rarity of this condition and because of several othe teresting factors, we feel that this case is worth report

REPORT OF CASE

History.—Mrs. F. G., 57, a housewife, separated from husband, was admitted to the medical service of the Wi Barre General Hospital on Sept. 2, 1949, because of na

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From the Medical Service of the Wilkes-Barre General Hospital.

† Dr. Wolfe, who was Chief of Medicine, died on Feb. 16, 1951.

1. (*a*) Wikler, A.; Williams, E. G.; Douglass, E. D.; Emmons, C and Dunn, R. C.: Mycotic Endocarditis: Report of Case, J. A. M **119**: 333 (May 23) 1942. (*b*) Joachim, H., and Polayes, S. H.: Sub Endocarditis and Systemic Mycosis (Monilia), J. A. M. A. **115** (July 20) 1940. (*c*) Friedman, N. B., and Donaldson, L.: Systemic My with Mycotic Endocarditis, Arch. Path. **27**: 394 (Feb.) 1939. (*d*) Pol S. H., and Emmons, C. W.: Final Report on Identification of Orga of Previously Reported Case of Subacute Endocarditis and Syst Mycosis (Monilia) J. A. M. A. **117**: 1533 (Nov. 1) 1941. (*e*) Wessle and Browne, H. R.: Candida Albicans (Monilia Albicans) Infection Blood Stream Invasion: Report of Case with Strain Clinically Resi to Sulfonamide Drugs and to *Penicillin in Vitro*, Ann. Int. Med. 22 (June) 1945. (*f*) Luttgens, W. F.: Endocarditis in "Main Line" Op Addicts: Report on 11 Cases, Arch. Int. Med. **83**: 653 (June) 1949.

vomiting, chills, and fever of two days' duration. Prior to this, she had been feeling ill; she stated she had had a cold with cough and lack of appetite. She was a known diabetic since January, 1949, and the diabetes was controlled on 15 units of protamine zinc insulin and 30 units of regular insulin daily. When she became ill, she took only 15 units of the protamine zinc insulin and ate only small quantities of food. Nevertheless, her fractional urinalysis showed no evidence of sugar. Her family physician suspected diabetic acidosis and sent her to the hospital for study.

Her past history and systemic review were noncontributory. She had always enjoyed good health except for cutaneous ulcers (etiology unknown) of the abdomen in December, 1948, and diabetes, which was discovered in January, 1949. The latter condition, however, was apparently well controlled since that time. Family history was irrelevant except that one sister died of "goiter" trouble and another of poisoning from "dyes."

On admission, the patient's temperature was 104 F, pulse rate 130, respiratory rate 28, and blood pressure 100/65. She appeared very toxic, wan, and somewhat apathetic. The positive physical findings were as follows: a dry scaly skin with several small scars on the abdomen due to healed superficial ulcerations. Four carious teeth were present with evidence of pyorrhea. She had a mild right scoliosis and kyphosis. Breath sounds were diminished over the right chest posteriorly, and in this area, inspiratory rales were heard. The heart was not enlarged to percussion. The rhythm was regular. A grade 3 systolic apical murmur and a grade 3 systolic pulmonic murmur were present. On admission no masses or organs were felt in the abdomen except the liver, which was approximately 1 cm. below the right costal margin. Moderate left costovertebral angle tenderness was noted. The pulses of the lower extremities were decreased, and slight right calf tenderness was elicited. Reflexes were hypoactive. A pelvic examination performed by a surgical consultant showed a small, tight vagina, atrophic uterus, and no pelvic pathology. Later, however, a repeat examination revealed evidence of a mild fungus infection of the labia minora.

Course.—On the day of admission, the patient complained of the right foot "going to sleep," associated with pain in the popliteal area and the calf. An embolic phenomenon with associated venospasm were suspected, and treatment with bishydroxycoumarin (dicumarol®) was begun. This was continued about three weeks, then discontinued when improvement in the leg occurred. At this time, although no dorsalis pedis pulse was present, no other circulatory changes were in evidence.

The clinical impression on admission was that the patient had either pneumonia or endocarditis. Before penicillin (50,000 units given intramuscularly every three hours) was begun, a blood culture was obtained. The first chest roentgenogram did not confirm our diagnosis of pneumonia, and it was not until three months later that the roentgenogram showed any evidence of pulmonary disease, at which time pulmonary edema and fluid in the right base was present. The patient's diabetic state never got out of control, and she was well maintained on 10 units of protamine zinc insulin daily plus a calculated diet.

As time went on, she continued to have a fever, complain of weakness, and show no signs of improvement. Numerous diagnostic studies were performed, including a complete gastrointestinal series (which showed a chronic inactive duodenal ulcer), roentgenographic examination of the skull and long bones, cystogram, intravenous urogram, and retrograde pyelogram. The kidney studies showed evidence of a left pyelonephritis confirmed by urine examination and cystoscopy. It is interesting to note that the original smears and cultures from the left kidney showed yeast cells (which were not considered important) and Aerobacter aerogenes. Treatment, therefore, was directed toward the latter finding.

Meanwhile other important studies were performed. The electrocardiogram was reported as normal. The serological test for syphilis was normal, as were the original blood cultures, Widal test, Brucella agglutination tests, spinal fluid examination, smears for malaria, bone marrow biopsy, and histoplasmin, coccidiodin, and blastomycin skin tests.

The patient showed a persistent microcytic type of anemia (hemoglobin 50% with 2,000,000 red blood cells) despite five blood transfusions of 500 cc. each. The white blood cell count and differential were essentially normal, but the sedimentation rate remained high, 15 to 33 mm. in one hour with a first zone curve. The urine was alkaline the greater part of the time, always showing albumin, a trace to a heavy cloud, with 1 to 10 red blood cells, 6 to 30 pus cells, and many bacteria; on occasion, yeast cells were noted on smears.

A total of 10 blood cultures were done, and three of these showed a Staphylococcus pyogenes albus and yeast, both considered to be contaminants. The first growth of yeast occurred in the fourth specimen taken on Nov. 14, 1949, and was present in all others thereafter.

Still suspecting a pyelonephritis as the primary source of the "bacteremia" and disregarding the yeast cell finding, we instituted numerous therapeutic trials of antibiotics and sulfonamides. On Oct. 4, 1949, the possibility of a perirenal abscess was considered, and perirenal paracentesis was performed, but the results were negative. The patient during this three month period, received penicillin in massive doses (43,000,000 units), including 5,000,000 units given intravenously daily during the three days before death. She also received aureomycin (7.5 Gm.), dihydrostreptomycin (28 Gm.), gantrisin® (3,4-dimethyl-5-sulfanilamidoisoxozole) (40 Gm.), sulfamerazine, and sulfadiazine (36 Gm.) at varying intervals.

Unfortunately, despite intensive antibiotic therapy and supportive therapy, the patient did not respond. By Nov. 18, 1949, numerous petechiae were noted over the abdomen, back, neck, arms, face, and conjunctivas. Tenderness in both upper abdominal quadrants was present, and the tip of the spleen was palpable. Pronounced disuse atrophy of both extremities had also occurred. Toward the end, the murmurs heard over the precordium were of less intensity, the rales in the right base increased, and the patient became uncooperative and delerious. Fuid intake and output became nil, and she died, after a very short convulsive seizure, on Dec. 9, 1949.

Autopsy.—Only the pertinent gross and microscopic findings are presented. When the thoracic cavity is opened, the right lung is found adherent to the parietal pleura. The upper lobe is covered with thick fibrinous adhesions. On section, the surface is reddish pink in color, and on pressure, air, blood, and fluid escape. The middle lobe is also reddish pink in color, but very little air, blood, and fluid escape on pressure. The lower lobe is similar in appearance and covered with adhesions, but is partially collapsed.

The surface of the left lung is smooth and reddish pink in color; a similar color is noted on section. The lung itself is partially collapsed and somewhat leathery in consistency. On pressure, a small amount of blood, fluid, and air escape. The bronchi and trachea are patent throughout. The mucous membranes are pale, and a small amount of mucus is present within the lumina. The adjacent mediastinal lymph nodes are few in number, small, and blackish in color.

The heart is in the midline, the apex occupying the fifth interspace. The heart is of normal size and is covered with a moderate amount of epicardial fat, which is injected. In the pericardial sac, there is a small amount of clear fluid. The myocardium of the left ventricle averages 1.4 cm. in width; aortic valve 7 cm.; pulmonary valves 6½ cm.; tricuspid valves 7 cm. in circumference. The papillary muscle is thickened, and the chordae tendineae are thin. The valves in general are leafy and supple. Above the leaflets of the mitral valve, there is a large, white soft fungoid growth measuring 3 by 1 by 0.5 cm. On the valve leaflets proper are two similar small projections each measuring approximately 6 by 0.2 by 0.2 cm. The orifices of the coronary vessels are patent, and the left descending artery shows a few fatty plaques. The right coronary artery is slightly thickened, but the pulmonary artery is smooth and patent throughout. The aorta above the valve is not dilated, and fatty plaques are noted throughout its length.

When the abdominal cavity is opened, the liver is noted to be 6 cm. below the costal margin. The other organs are in normal position, and the peritoneal surfaces are smooth, moist, and glistening. The liver is enlarged and measures 27 by 25 by 8 cm. The capsule is slightly thickened. The surface is reddish in color, but several small pinpoint whitish areas are present. On section, the liver is dark brown in color with multiple foci of apparent hemorrhage. The lobules are not distinct.

The uterus, tubes and ovaries show senile atrophy. The vagina appears injected, as does the surface of the uterus. On section, the mucous membrane of the vagina is pale, and a small amount of mucus is present.

The left kidney measures 10 by 3.5 by 2.5. cm. The outer surface shows fetal lobulations, and the capsule strips easily in some places, but with difficulty in others. Numerous small petechial hemorrhages are seen beneath the capsule. On section, the cortex and medulla are poorly differentiated. The parenchyma is pale. The calyces are slightly dilated and contain a small amount of yellowish, cloudy urine.

The right kidney measures 11 by 4.5 by 5 cm. Fine scarring is noted on the outer surface. The capsule strips with difficulty, and numerous petechial hemorrhages are noted beneath it. On section, the medulla and cortex are fairly well differentiated. The parenchyma is darker red than in the left kidney, and although the pelvis is slightly dilated, the urine present does not appear abnormal. The ureters are patent and normal throughout.

The spleen is enlarged three times its normal size, weighing 720 Gm. and measuring 18 by 10 by 7 cm. On the outer surface, which is smooth, can be seen three areas approximately 2 cm. in diameter which are lighter in color than the surrounding tissues. On section, the tissue is deep red in color, and the pulp scrapes easily with a knife.

The bladder is contracted; the mucosa appears thickened, roughened, and reddened. A small quantity of reddish tinged purulent urine is present.

Microscopic examination revealed the following: Lungs: The vessels present appear thin-walled. Some of the alveoli contain red blood cells and large pigmented macrophages. Other alveoli are collapsed; some appear fragmented, and the capillaries are surrounded by fibrous tissue. Around some of the bronchioles are foci of lymphoid cells. A few small areas of fibrous scarring and anthracotic granules also occur.

Heart (Mitral Valve): The growth on the mitral valve is composed of clumps of yeast-like cells and hyphae. The underlying tissue is fibrous and contains a few capillaries. In the heart muscle beneath the valve are found small foci of what appear to be yeast cells and lymphoid cells. In a second section from the mitral valve are poorly preserved yeast cells in a large mass on the outer portion of the valve. In the underlying brous tissue are plasma cells, lymphoid cells, a few macroages, and numerous capillaries. In sections taken from other arts of the heart are found foci of lymphoid cells and yeast cells as well as a few large macrophages. The nuclei of the cardiac muscle are fairly regular in size and shape.

Liver: Most of the liver cells appear well stained and contain bile pigment. A few foci of lymphoid cells and apparently small yeast cells occur. Lymphoid cells are also noted around the ducts. The capillary spaces are slightly dilated.

Spleen: The lymphoid follicles are small and few. Hyalin change is present in the centers of most of them. The walls of the sinuses are not distinct, and within the lumina are large masses of large round cells, plasma cells, lymphoid cells, red blood cells, and a few polymorphonuclear leucocytes. In some of the small vessels is a subendothelial hyalin formation with thickening of wall and narrowing of lumina. In some sections, areas of necrotic tissue and apparent yeast cells are found. A second smaller area shows partial necrosis but no yeast cells. Epithelioid cells and lymphoid cells are present.

Kidney: In the cortex are foci of fibrous scarring with hyalin glomeruli and lymphoid cells. Slight fibrosis is observed in the capillary tufts of a few glomeruli. The vessels appear thick-walled, and extravasated blood is found in the lumen of many tubules. In one area is a focus of lymphoid cells and what appear to be yeast cells. Beneath the epithelium of the pelvis are several foci of lymphoid cells. The latter also appear in the peripelvic fat. In one section of the kidney is found a g number of glomeruli showing hyalin degeneration. The vessels in this area also appear thick-walled.

Stomach: The mucosa is well preserved. Although no y cells are observed, in the muscularis around one of the ves is found a focus of lymphoid cells.

Bladder: The epithelium of the bladder is well preser Beneath it are noted large foci of lymphoid cells but no ap ent yeast cells.

Vaginal Wall: The epithelial lining is intact, and bene it are noted a few lymphoid cells and polymorphonuclear le cytes. No yeast cells appear to be present.

Pathological findings, in addition to a history of diabetes, as follows: (1) mycotic endocarditis of the mitral valve w foci of infection in myocardium, liver, spleen, and kidneys; splenomegaly and granuloma; (3) hepatomegaly; (4) chro pyelonephritis with slight intercapillary fibrosis and hemorrh in tubules; (5) chronic cystitis; (6) chronic vaginitis; (7) cong tion of all lobes of the lungs; chronic pleuritis of lungs; atrophy of pancreas and hyalin change in islands of Lang hans; (9) scoliosis of the lumbar vertebra, and (10) edema the ankles.

Mycologic studies revealed that smears taken at the time autopsy from the mitral valve, bronchi, and kidneys all sho yeast cells similar to those cultured from the blood of the pati during life. A specimen of this fungus was sent to Dr. Norm F. Conant of Duke University, who reported it to be Cand krusei.

COMMENT

In reviewing the literature, we were able to find six reported cases of mycotic endocarditis: those m tioned in Wikler's article and one reported by Luttge In all these cases, the patients were drug addicts used the drug intravenously. Studies were done Emmons at the National Institute of Health in orde determine if the fungus causing the endocarditis in of the patients were caused by a contaminant in heroin or its adulterants.[1a] No definite proof of this established.

Other possible sources considered were the pati mouth, intestinal tract, and vagina, since Candida sp *may be cultured from these locations in 35 to 40* normal persons.[2] Despite the fact that the cause of mild fungus infection noted on the external genital our patient was not identified by smear or culture, we that it may possibly have been the source of the tagion. We know that this particular fungus (Can krusei) has been found in certain patients with without complaints of pruritus vulvae.[3] It is also known that diabetes predisposes to mycotic vaginitis that even with the aid of the laboratory, differentia between primary and secondary invaders is difficul that we may treat what we think is the offending or ism, only to allow the other greater leeway to cause ther damage.[4]

Just how the organism managed to enter the bo still a matter for conjecture, but knowledge that this tient used insulin daily gives us every reason to feel contamination of the syringe, needle, or even the ins may have taken place.

This case emphasizes the importance of mycotic in tions and the need for some adjustment of our clin concepts concerning them. Therefore, it is felt tha illness of this type should be considered when adeq antibiotic therapy has been employed with no respo Thus far, present known powerful antibiotics, as dem strated by our case, have no effect. Recently, howe

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2. Dubos, R. J.: Bacterial and Mycotic Infections of Man, Philadelphia, J. B. Lippincott Company, 1948. Conant, N. F., and others: Manual of Clinical Mycology, Series 2, Philadelphia, W. B. Saunders Company, 1944, chap. 32.

3. Jones, C. P.; Carter, B., and others: Mycotic Vulvovaginitis and the Vaginal Fungi, Am. J. Obst. & Gynec. 54: 738 (Nov.) 1947.

4. Smith, D. T.: Fungus Diseases Encountered in General Hospital Practice, Am. J. Med. 2: 594 (June) 1947.

Swart and his associates have isolated a new antibiotic which seems to have antifungal properties.[5]

The case we have reported also emphasizes the importance of consideration of mycotic infections in the differential diagnosis of obscure febrile conditions. This diagnosis can be made by recovery of the causative organism in body fluids, exudates, or purulent discharges, or by biopsy of suspected tissue.

This case further illustrates the necessity of more careful sterilization technique when parenteral medication is being administered by untrained personnel. Finally, we are impressed with the danger of ignoring laboratory reports of yeast cells—considering them as contaminants.

In general, we must assume that the increased quality and quantity of antibiotics and chemotherapeutic agents available to the average patient have produced a changing pattern in the progress of diseases due to infections. We can confidently expect that further advances in therapy will result in continued changes, which will challenge our judgment and clinical appraisement.

SUMMARY

A case of disseminated moniliasis, with autopsy findings, is reported. The etiologic agent was Candida krusei. This is the first reported case of mycotic endocarditis in a diabetic and also of endocarditis due to Candida krusei. Although the prognosis remains hopeless in cases of mycotic endocarditis or meningitis, there is some hope that specific antibiotics may be available. Physicians should be alert to the possibility of fungus infection and never ignore or minimize the presence of yeast cells in cases in which that possibility exists.

87 Academy St. (Dr. Henderson).

[5] Antifungal Antibiotics, editorial, J. A. M. A. **144**: 850 (Nov. 4) 1950.

CARDIAC ARREST

COMPLETE RECOVERY AFTER TWENTY-FIVE MINUTES

Max G. Carter, M.D., New Haven, Conn.

Total cessation of the heartbeat during a surgical operation presents a crisis demanding direct action. Correct treatment requires previous planning for action in the event of such an accident, as well as knowledge of the probable causes of cardiac arrest. It is generally agreed that there are two principle factors, either one or both of which are usually responsible for the onset of cardiac standstill: first, excessive manipulation of the heart itself or of the pulmonary hilar structures during thoracic surgery; and second, myocardial hypoxia due either to generalized arterial hypoxia or to direct occlusion of one or more coronary vessels by internal damage or external pressure.[1] The case of cardiac arrest presented here is of interest because the patient had a markedly diminished pulmonary reserve, which had been measured objectively prior to thoracic surgery; this patient was one, therefore, in whom complications were felt to be more likely than is usual. After cardiac arrest supervened during surgery, resuscitation was effected by commonly established measures, to which was added occlusion of the thoracic aorta. The successful use of aortic occlusion in a human being, first suggested by Wiggers,[2] does not seem to have been reported previously.

REPORT OF CASE

History.—G. B., a white man aged 63, was admitted to Boston City Hospital with chief complaints of coughing of blood, weight loss, and increasing fatigue. He gave a history of increasing thoracic complaints over the preceding 15 years. These had consisted of asthma-like attacks with dyspnea, orthopnea, and wheezing, together with frequent respiratory infections. He produced approximately a half cup of yellowish, nonfoul sputum daily. A significant cough occurred only with episodes of pulmonary infection. Eight months prior to his admission, the first hemoptysis had occurred. Thereafter there were repeated episodes of blood-spitting with an intermittent left anterior chest pain becoming worse with respiration, an increase in cough, and a weight loss of 26 lb. (11.8 kg.) in spite of no change in appetite or food intake. There was no history either of tuberculosis itself or of contact with it.

Physical Examination.—The patient was well-developed but showed obvious weight loss, chronic illness, and moderate dyspnea when resting. There was some clubbing of the fingers. The thorax was increased in anteroposterior diameter, and the breath sounds were of diminished intensity. Diaphragmatic motion was decreased. There were numerous wheezes and rhonchi, which cleared on cough. There were dullness and marked diminution of the breath sounds over the left lower lobe. No rales were heard. The blood pressure was 190/100; cardiac rate, regular at 88 beats per minute; rectal temperature, 100.6 F.; respiratory rate, 20.

Laboratory Data.—On admission the hemoglobin value was 14 gm.; white blood cell count, 18,500; hematocrit reading, 47; and the differential blood count revealed 76% polymorphonuclear leukocytes, 22% lymphocytes, and 2% eosinophils. Three sputum concentrations were negative for acid-fast bacilli. Sputum cultures taken prior to the institution of antibiotic therapy revealed alpha hemolytic Streptococcus, Neisseria flava, and Micrococcus catarrhalis. Tentative diagnoses of bronchogenic carcinoma, pulmonary emphysema, hypertensive heart disease, and possible bronchial asthma were made.

Further cardiovascular evaluation revealed a venous pressure of 110 mm. of water; circulation time, arm to lung, six sec. (ether); arm to tongue, 12 sec. (magnesium sulfate). The electrocardiogram was interpreted as being probably within normal limits. Bronchoscopy revealed a fungating tumor growing in the left lower lobe bronchus. The remainder of the tracheobronchial tree was normal. A tissue biopsy was not diagnostic, but suggested carcinoma. A Papanicolaou smear obtained from the same bronchus was reported positive for carcinoma cells.

Pulmonary physiologic studies revealed a maximum breathing capacity of 38 l. per minute, a walking ventilation (Warring) of 19 l. per minute, and a vital capacity of 2,600 cc. After isopropylarterenol (isuprel®) hydrochloride inhalation the maximum breathing capacity remained at 38 l. per minute and the vital capacity had increased only 60 cc., thus excluding genuine asthma.[3] Fluoroscopy revealed the trachea and mediastinum to be in the midline; the right diaphragm moved approximately 60% of normal, the left diaphragm was not visible because of left lower lobe "atelectasis." The rib motion was 50% of normal bilaterally, and no air-trapping was visible on either side. Posteroanterior and lateral roentgen examinations of the chest confirmed the fluoroscopy and revealed a density occupying the

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[1] Wiggin, S. C.; Saunders, P., and Small, G.: Medical Progress: Resuscitation, New England J. Med. **241**: 370-378 and 413-420, 1949.

[2] Wiggers, J. C.: The Physiologic Basis for Cardiac Resuscitation from Ventricular Fibrillation: Method for Serial Defibrillation, Am. Heart J. **20**: 413-422, 1940.

[3] Gaensler, E. A.: Ventilatory Tests in Bronchial Asthma: Evaluation of Vital Capacity and Maximum Breathing Capacity, J. Allergy **21**: 232-241, 1950.

normal position of the left lower lobe with good aeration of the upper lobe and its lingula. The right lung was normal except for obvious pulmonary emphysema.

Preoperative Course.—After his admission to the hospital, the patient was given penicillin, both intramuscularly and by aerosol inhalation. His temperature returned to normal and cough and sputum decreased; at the time the pulmonary physiological studies were performed he was considered to be in optimum physical condition consistent with his disease. Two weeks after his admission, pneumoperitoneum was instituted in an effort to increase the patient's pulmonary efficiency.[4] After two refills on successive weeks, repeated pulmonary physiological studies showed his maximum breathing capacity to have been decreased by 4 l. per minute. Nevertheless, the patient observed that his cough was more effective than formerly.

It was felt that, in spite of the low pulmonary function, the patient could tolerate removal of the nonfunctioning left lower lobe. The bronchus to this lobe was obstructed by a tumor, and the suppuration distal to this obstruction presented adequate indication for surgery. No further pneumoperitoneum refills were given, but sufficient intra-abdominal air remained to provide an increased tussive force postoperatively. The danger of operation and the necessity for maintaining a high arterial oxygen saturation at all times were recognized and carefully discussed with the anesthetist.

Operation.—Four weeks after the patient's admission to the hospital an exploratory thoracotomy was performed. With the patient under endotracheal gas-oxygen-ether anesthesia and in the right lateral decubitus position, his chest was opened through the bed of the left sixth rib. The left lower lobe was found to be densely adherent over the posterolateral and diaphragmatic surfaces. There was moderate blood loss due to the many adhesions, but the dissection progressed readily until the lobe was entirely free. During this dissection there were many secretions that the anesthetist removed by careful endotracheal suction for short periods followed by positive-pressure oxygen insufflation. After one such period of endotracheal aspiration, the patient's color became very dark. At this point the heart was seen to slow gradually and come to a complete stop. Cardiac massage was immediately begun, the surgeon squeezing the heart between the thumb and fingers of his left hand at a regular rate, approximately 50 to 60 contractions per minute. At the same time the sthetist continued positive-pressure oxygen insufflation at a r rate. Neither a pulse palpable in the radial arteries nor ctable blood pressure was present for the first few seconds. his right hand the operator then manually compressed e aorta distal to the take-off of the left subclavian artery. After this maneuver a perceptible pulse was present at both wrists and a blood pressure of approximately 60 mm. Hg systolic was clearly audible. Two cubic centimeters of epinephrine, 1: 1,000, was injected into the left ventricle. Cardiac massage was continued, but no cardiac beats were felt. Fifteen minutes after the onset of cardiac arrest, 2 cc. more of epinephrine was injected, 1 cc. into the left ventricular myocardium and 1 cc. into the ventricular chamber. A few feeble contractions began while massage was continuing. Procaine hydrochloride totalling 100 mg. was given intravenously by the anesthetist in divided doses approximately 10 min. apart. Within five more minutes the heart had resumed a normal but somewhat weak rhythm. Cardiac massage was therefore discontinued, 25 min. after the onset of complete cardiac arrest. The rib spreading retractor had been removed when cardiac arrest first became apparent. The maintenance of massage at an adequate rate of around 50 to 60 contractions per minute was so fatiguing that the surgeon and the first assistant alternated for periods of five minutes each. The occlusion of the aorta distal to the subclavian artery was maintained throughout the period of massage, and gradually discontinued as the heart began its normal rhythm. The resection was then abandoned, and thoracic closure, with continuous sutures to all layers, was made rapidly. The patient was turned on his back, and endotracheal aspiration was made through the bronchoscope while a heavy flow of oxygen was maintained. After thoracic closure, the patient's blood pressure rose to 132/68; his pulse was somewhat irregular but strong, and his color was normal. During the procedure, a gradual transfusion of 2,000 cc. of compatible whole blood had been given.

Postoperative Course.—The patient recovered satisfactorily, and an electrocardiogram on the day following surgery was interpreted as revealing "a sinoauricular tachycardia, probably within normal limits." Recovery was uneventful. The patient was able to cough secretions with moderate force. Two thoracenteses were necessary to evacuate serosanguineous fluid, but his wound healed well. Careful examination by each of the physicians who had seen the patient preoperatively revealed no change in his physical or mental status, and he was discharged from the hospital on the 11th postoperative day.

COMMENT

Experience with this patient clearly illustrates the direct effect of arterial hypoxia on the myocardium. Kergin, Bean, and Paul[5] have used the electrical oximeter to demonstrate the fall in arterial oxygen saturation that follows excessively vigorous endotracheal aspiration during anesthesia. The patient described in my paper was known to have a very narrow pulmonary reserve. In spite of this, his condition on the operating table remained stable while aspiration of his airway was done at frequent intervals for short periods. Immediately before cessation of heart action, one episode of endotracheal aspiration had been much longer and more vigorous than any preceding aspirations. After this aspiration and prior to the cessation of the heartbeat, both skin and blood appeared to be of an extremely dusky hue that was noticed by both the anesthetist and the surgeon. The vagus nerve[5] was probably also stimulated by the hilar dissection.[6] Some form of oximeter would have been a valuable adjunct in detecting arterial hypoxia before the critical point was reached.

The fatal effect of prolonged cerebral anoxia is well known. Experience with this patient also illustrates how an effective cerebral and coronary blood flow may be maintained, even with the markedly diminished cardiac output produced by manual massage, if no effort is made to maintain circulation to the entire organism. Occlusion of the aorta distal to the origin of the subclavian artery for relatively long periods has been shown to be harmless.[7] That this maneuver will also maintain an effective cerebral and coronary blood flow is now well established, although the experimental report of Johnson and Kirby[8] had not been published at the time this patient was seen. Postoperatively there was no immediate evidence of cerebral damage. The patient was examined again six months after discharge; at that time he was mentally sound and as alert as at the time of operation. In the intervening months there had been several episodes of severe pulmonary infection due to the obstruction caused by the tumor; but symptoms had been palliated by antibiotic therapy.

SUMMARY

A case of cardiac arrest in which the heart was in complete standstill for 25 min., occurring in a patient during intrathoracic surgery, is reported. Life was maintained by artificial respiration and cardiac massage. An adequate

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4. Carter, M. G.; Gaensler, E. A., and Kyllonen, A.: Pneumoperitoneum in the Treatment of Pulmonary Emphysema, New England J. Med. **243**: 549-558, 1950.
5. Kergin, F. G.; Bean, D. M., and Paul, W.: Anoxia during Intrathoracic Operations: A Preliminary Report, J. Thoracic Surg. **17**: 709-711, 1948.
6. Sloan, H. E.: The Vagus Nerve in Cardiac Arrest, Surg., Gynec. & Obst. **91**: 257-264, 1950.
7. Crafoord, C., in discussion of Fauteux, M.: Cardiac Resuscitation, J. Thoracic Surg. **16**: 623, 1947.
8. Johnson, J., and Kirby, C. K.: An Experimental Study of Cardiac Massage, Surgery **26**: 472, 1949.

cerebral and coronary blood flow was secured by manual occlusion of the aorta distal to the left subclavian artery while cardiac massage was performed.

It is suggested that this maneuver should be used in all cases of cardiac arrest.

The reported case is evidence in confirmation of the thesis that vigorous endotracheal aspiration produces arterial hypoxia and may be a cause of cardiac arrest in a patient with pre-existing pulmonary deficiency.

614 Orange St.

FULL-TERM ABDOMINAL PREGNANCY

REPORT OF TWO CASES

R. J. Burleson, M.D.
and
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There have been several complete surveys of the literature concerning abdominal pregnancy. Hellman and Simon[1] reported 316 cases of intra-abdominal pregnancy. They included a series of fetuses from 22 weeks' gestation to term. The number of live births was 158, and the number of mothers surviving was 212. There were probably only 50 cases in which mother and baby were entirely well. Gardner and Middlebrook[2] reported 22 other cases, and in only one case in the series was there a full-term surviving infant with no congenital anomalies or deformities and a surviving mother. In 1946, Beacham[3] recorded 20 additional cases from the records at Charity Hospital, New Orleans, and, of the 20 cases, only nine were at term; and, further, there were only two live babies. From 1946 through 1948, approximately 49 additional cases have been reported in the literature. Only 14 of these pregnancies progressed to term, with nine normal living infants. Lee[4] gives a relative idea of the rarity of this condition in a five-year (from Jan. 1, 1940, to Dec. 31, 1944) survey at the Swedish Hospital, Seattle. During this period there were 9,384 deliveries and 615 spontaneous or therapeutic abortions, making a total of 9,999 pregnancies. Of this number there were 58 extrauterine pregnancies and only one abdominal pregnancy (secondary), with a living infant. It is generally conceded that abdominal pregnancy in all its forms occurs about once in 2,300 deliveries.[5] It was felt, therefore, that the two following cases that occurred in our practice in a three-year period would be of interest.

REPORT OF CASES

Case 1.—K. C., a Negro primigravida, 22, was admitted to Decatur General Hospital on Sept. 13, 1947. Her last menstrual period was probably in November, 1946; however, she had continued to have spotting, and this date is not definite. In December, 1946, the patient had acute pelvic pain with chills and fever and was put to bed by the attending physician, who interpreted her condition as "pelvic cellulitis." She was treated with rest and chemotherapy. Convalescence was progressive but slow, and the patient was able to be up only after about six weeks in bed. Pain and soreness in the lower abdomen continued, and she noticed that her abdomen began to enlarge after about three months. The family physician was again consulted, and pregnancy was diagnosed. Fetal movements appeared and were intense. The intensity increased until two weeks prior to the patient's admission to the hospital. When she was seen on admission by one of us (J. C. B.), there were no fetal movements or heart tones. Examination at this time revealed a large, smooth, movable mass in the abdomen, a uterus of normal size with a small, hard cervix, which was displaced high under the symphysis. There was slight mucopurulent discharge but no vaginal bleeding. The position of the fetus was undeterminable because of the pronounced distention, apparently caused by fluid. On Sept. 17, 1947, celiotomy was performed, and a normal-appearing, 8 lb. (3,628.73 gm.) fetus (dead, but not macerated) was removed. The sac and placenta were entirely removed, but hemorrhage from the posterior uterine surface was uncontrolled, and a left salpingo-oophorectomy and hysterectomy (supravaginal) was necessary. This controlled the hemorrhage, and the wound was closed without drainage. The patient had an uneventful recovery after two transfusions of whole blood. She was discharged as recovered on Sept. 25, 1947.

Comment.—This case was definitely an abdominal pregnancy of "secondary" type, with the "cellulitis" that occurred soon after conception probably indicating expulsion of the tubal pregnancy into the abdominal cavity. The placenta was attached to the uterus (posterior surface), the parietal peritoneum of the pelvis, left tube and ovary, the broad ligament, and the sigmoid colon. This pregnancy, from all indications, was post-term, to judge by the 10 months' history and the weight of the baby. Beacham[3] has stated that these patients should be operated on before term and that the damage to mother and infant occurs in the last two weeks of pregnancy. Evidence that fetal movements were present two weeks prior to the patient's admission to the hospital and the fact that the baby was perfectly normal in appearance suggest that, if the diagnosis had been made and surgical measures instituted two or three weeks earlier, a normal live baby might have been delivered in this case as in the second case.

Case 2.—S. S., a Negro primigravida, 34, was admitted to Decatur General Hospital on March 16, 1950. She was sent to the hospital by the family physician because of continued unproductive labor pains of two weeks' duration and a fetus in transverse position. The history gave the last menstrual period as June 16, 1949. There were no noticeable complications or symptoms during the pregnancy according to the patient. Examination revealed a term pregnancy, fetus in transverse position, and normal fetal heart tones. The baby was apparently large and was carried high. The patient had a somewhat narrow pelvis. On the basis of these observations and the unproductive labor ("false labor" usually described in these cases), cesarean section was decided on. On examination prior to surgery, we made the same mistake as Billington and Goodchild,[6] in interpreting the normal uterus as an associated fibroid of the lower segment of the pregnant uterus. With the patient under spinal anesthesia, on March 17, 1950, we began what was intended to be a cesarean section; however, on opening the peritoneum, we saw the sac and fluid. We first wondered, like Bowesman,[7] if "the 'fibroid' was undergoing degeneration." On closer inspection and further dissection fetal parts were seen through the membranes, and these then being opened, a live, normal, full-term, 5 lb. 2 oz. (2,324.66 gm.) infant was delivered. The placenta in this case also was dissected with care away from the broad ligament, in its entirety, and hemostasis was obtained by continued pressure of the assistant's hand over the newly denuded area during the slow deliberate dissection. The placental mass was also attached to the posterior uterus, left ovary, and tube and small sites on the small bowel and its mesentery. It was necessary to remove the left tube and ovary en bloc with the placenta. After removal of the placenta the wound was closed without drainage. The patient was given two transfusions, and both baby and mother were discharged from the hospital, on March 27, 1950, fully recovered. The baby was normal in every respect, and, at the time of the writing of this paper, was still living and healthy.

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[1] Hellman, A. M., and Simon, H. J.: Full Term Intra-Abdominal Pregnancy, Am. J. Surg. **29**: 403 (Sept.) 1935.

[2] Gardner, A., and Middlebrook, G.: Abdominal Pregnancy: Survey of Literature and Report of an Unusual Case, Am. J. Surg. **66**: 161 (Nov.) 1944.

[3] Beacham, W. D., and Beacham, D. W.: Abdominal Pregnancy: A Review of Present Knowledge Based Partly on Reported Cases and Partly on the Experiences of the Charity Hospital of Louisiana at New Orleans During the Period July 1, 1937 Through June 30, 1945, Obst. & Gynec. Surv. **1**: 777 (Dec.) 1946.

[4] Lee, A. F.: Extrauterine Pregnancy: 5 Year Study, Northwest. Med. **45**: 40 (Jan.) 1946.

[5] Swanson, C. N.: Abdominal Pregnancies Occurring in Detroit During 1933, J. Michigan M. Soc. **34**: 585 (Oct.) 1935.

[6] Billington, W. R., and Goodchild, R. T. S.: Two Unusual Cases of Abdominal Extrauterine Pregnancy, Brit. M. J. **2**: 787 (Oct. 30) 1948.

[7] Bowesman, C., and Chenard, A. H.: Full Term Intra-Abdominal Ectopic Pregnancy, Irish J. M. Sc. **267**: 132 (March) 1948.

COMMENT

Beacham[3] states that a fetus in transverse position in a primigravida should be indicative of an abdominal pregnancy until proved otherwise. Therefore, we probably should have known the type of this case before surgery. However, these cases are so rare that, as pointed out in nearly all reports of cases, it is usual that diagnosis is made most accurately during surgery. We cannot speak with authority on the question of removal of the placenta; however, if it can be done readily, this would seem advisable. The use of continued pressure over the denuded areas, with hot packs under the assistant's hand, is credited with much of the success in our control of hemorrhage in the second case. Because this is a rare and dangerous condition, we are grateful for our success in both cases. The two cases parallel each other closely, and if the first patient had been admitted to the hospital earlier, we might have been able to have reported two full-term abdominal pregnancies, with two live normal babies, and living mothers. In the second patient there was no history to indicate tubal abortion or rupture, but because of the location of the placenta, we have assumed that it is, as the first case, secondary in type.

SUMMARY

The literature is superficially reviewed for the number ull-term abdominal pregnancies and subsequent nor l live babies born by celiotomy. Two cases of full-term abdominal cyesis are described, both with normal fetuses, one post-term and dead, the other alive. Both placentas were removed during surgery, and both mothers recovered.

705 Sixth Ave. East.

Immunity in Leprosy and Tuberculosis.—BCG administered orally in repeated doses seems to be effective in turning the results of the tuberculin and lepromin tests to positive in patients who previously had been negative to both tests. Souza Campos and associates recommended repeated BCG oral vaccinations for all children of leprous parents during the first days of life as a prophylactic measure, and they suggest that the positive Mitsuda reaction brought about by the oral administration of BCG may be connected with the immunity process of tuberculosis and independent of the process of hypersensitivity.

The practical conclusion that we may draw from these interesting studies is that we are facing the possibility of mass immunization of children against leprosy in those countries highly affected by this disease, and that, although this immunity may not be absolute, the type of leprosy which might develop among some of these children would be of the tuberculoid type, i. e., of benign, practically noninfectious character. This may result in time in a great reduction of the incidence of leprosy and its eventual eradication.—V. Pardo-Castello, M.D., Cross Immunity in Leprosy and Tuberculosis, *International Journal of Leprosy,* April-June, 1951.

SPECIAL ARTICLE

Statement by the Committee on Emergency Medical Care of the American Diabetes Association, Inc.

Membership of the Committee on Emergency Medical Care: Franklin B. Peck, M.D., Indianapolis, Chairman; Charles H. Best, M.D., Toronto, Ontario, Canada, Insulin Supplies; Henry B. Mulholland, M.D., Charlottesville, Va., Chairman, Subcommittee on Treatment; William H. Olmsted, M.D., St. Louis, Chairman, Subcommittee on Nutrition; Edward L. Bortz, M.D., Philadelphia, Liaison with Other Agencies; Lester J. Palmer, M.D., Seattle; John A. Reed, M.D., Washington, D. C., and J. Richard Connelly, New York, Secretary.

EMERGENCY MEDICAL CARE OF DIABETICS IN CIVILIAN DEFENSE

The American Diabetes Association has been considering since August, 1950, the problem of emergency medical care for diabetics in case of disaster. On Dec. 4, 1950, the Committee on Emergency Medical Care was formed, and since then its activities have been given top priority by the association. The need for adequate measures to provide for the health and welfare of the one million known (and estimated one million unknown) diabetics in this country as part of the national security program is recognized by the association. Approximatel 70% (700,000) of the diabetics in the United State take insulin daily. Many of them would die in a short tim if insulin were not available. The need for prompt an effective treatment of casualties among this group woul become particularly critical in event of a major catastrophe, since they would be utterly dependent on a continuing and possibly increased supply of insulin to prote them from acidosis, coma, and certain death. Provisio for adequate care of diabetics should be a definite facto in any emergency mobilization activity. All medical, surgical, and pediatric conditions presenting dietetic and nutritional problems among the diabetic casualties an evacuees should be foreseen, as well as the general problems precipitated by national emergency conditions.

Diabetics can also play as important a role in tot emergency mobilization as nondiabetics. Although, generally speaking, they are not eligible for military service, they are employable and form an integral part of th total manpower reserve. Furthermore, they have a facilit in the use of hypodermic medication which makes them invaluable in caring for other diabetics and as auxiliar nursing aids. Maintenance of their health and morale i consequently, a vital necessity. Their morale and that o their families will best be sustained if adequate measures are taken for their protection. The committee's primar responsibilities in approximate order of importance hav therefore been to study and plan along these lines: Insulin storage, supply, and distribution in both target an nontarget areas; medical treatment of diabetics in an major emergency; nutrition for the diabetic population and dissemination of information concerning care of diabetics in emergencies.

Present plans involve maintenance of close liaison with the ultimate government authority in civil defense. Two conferences have been held in Washington with governmental agencies, including the United States Public Health Service, Federal Security Agency, National Security Resources Board, Federal Civil Defense Administration, and others interested in the problem. The association is keeping in close touch with these agencies and is also working with the Council on National Emergency Service of the American Medical Association and the National Health Council. Present activities include planning with the federal government to assure adequate production of insulin and methods of distribution, including adequate dispersal and protection of the present insulin inventory; establishment of temporary production lines in the event of destruction of equipment; and consideration of means of providing for a continuing and adequate flow of cattle pancreas glands. The Subcommittees on Nutrition and Treatment are gathering data for incorporation into the total defense program. These studies encompass types of insulin, nutrition, simple methods of urine and blood sugar testing, treatment of burns, synthetic plasma substitutes, management of hospitalized diabetics, training of personnel, and other problems.

Plans for the future call for full activation of the program in all its details and any other items which later may be considered advisable, utilizing any and all authoritative channels and sources.

INSULIN SUPPLIES

With the cooperation of the insulin manufacturers of the United States and Canada, data have been assembled concerning the present inventories of insulin, their distribution and storage, and the prospects for maintaining supplies in event of wartime disaster. Many of these facts have been given to Dr. Best in confidence and are not available for release at this time. The present inventories of insulin in this country are at an all-time high level, which would be sufficient to meet anticipated needs for at least two years. The industry has long been cognizant of the problem and has independently taken steps to protect bulk stores of insulin and to activate emergency manufacturing lines if present facilities are destroyed.

Methods of distribution in the pharmaceutical industry are well adapted to meeting the needs of a temporarily isolated segment of population, since hundreds of well-stocked wholesale and branch distributing outlets are maintained throughout the United States. Each of these normally serves as a nearby storage point for emergency needs and is so organized that its individual stockpile of insulin preparations is properly stored and does not become outdated. A conservative estimate is that these outlets maintain a 30 to 60-day supply for each area. Furthermore, the retail pharmacies of the country provide additional storage for another 15 to 30 days in advance of current needs. To this backlog must be added another 30-day supply actually in the hands of the diabetic population. Thus normally enough insulin appears to be widely disseminated at local levels to provide for 60 to 90 days at current rates of usage. The logistics of moving these supplies into disaster areas and augmenting the supplies from larger storage points obviously becomes the responsibility of the over-all civilian defense program.

Owing to the nature of insulin preparations and the legal standards which have been set up for their storage, stockpiling of insulin in the usual sense does not appear practical at the present time. Stocks of insulin must be kept constantly refrigerated, above freezing and below 59 F. They must be moved at sufficiently close intervals into the market to prevent loss on account of expiration of legal storage periods or deterioration. The industry itself is thus in the best position to meet the responsibility of providing adequate supplies and has given every assurance of complete cooperation in this respect. Means for transferring supplies from area to area should therefore be immediately incorporated into the over-all civil defense program.

*Example of a Possible Casualty Picture in Event of Atomic Bombing**

	General Population	Diabetics †
Killed	40,000	.....
Injured, needing hospitalization	80,000	1,600
Minor injuries, needing outpatient care	30,000	.....
Evacuees, uninjured	50,000 ‡	1,600
Total diabetics		3,200 *

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* These figures are based on estim[illegible] involving an area of 12 to 20 square miles [illegible] 150,000 to 200,000 people (population density [illegible] are mile). The central area in a radius 2 to 2 [illegible] complete destruction.

† Such factors as distribution of the diabetic population and degree of diabetic impairment raise a question as to the value of these estimates.

‡ One-half might find food and shelter among relatives and friends and many would be rapidly evacuated to other parts of the state.

TREATMENT OF DIABETICS IN DISASTER AREA

It is believed that 1% of the population are diabetics and that another 1% are undiagnosed diabetics not heretofore under medical care. Diabetes becomes more severe in the presence of an injury, shock, burn or infection. It is assumed, therefore, that roughly 2% of the casualties would be diabetics, 1% known and 1% unknown. The totals are shown in the accompanying table and represent the maximum number. It is also apparent that many of the diabetic casualties who did not require insulin previously would need it then, as a result of their injuries or of shock. Identification of these cases would be difficult, and on this account the recommendation has been made to government authorities that any program of "tagging" the population with blood groupings and other information for medical treatment include a designation for the known cases of diabetes. Experience during World War II indicated that attempts to tag diabetics as such are not widely acceptable and are doomed to failure.

In addition to the dead and the living casualties, there would be displaced persons who, although uninjured, would be homeless, their dwellings being uninhabitable. An estimation of the numbers of these people who would need the care of local authorities is difficult. A residue of perhaps one-half or one-third of the total displaced persons would need housing and feeding—approximately 20,000 to 30,000 persons.

PREDISASTER TRAINING OF DIABETICS

The urgency for the immediate education and training of civilians in preparation for a possible attack is admitted by all familiar with the problem. The American Diabetes Association, its affiliate associations, and state and county medical societies all should be deeply concerned with an educational program for diabetics. The information should be in simple form which could be printed as a handbill. The following example is suggested.

THE DIABETIC AND THE ATOMIC BOMB

Read the government's small pamphlet called *"Survival Under Atomic Attack."* Get it from your civil defense organization. *Read it!*

Carry your identification (diabetic) card with you at all times, if you have one. If not, civil defense authorities may supply one.

WHERE TO GO

In the event of an atomic bomb attack on your city, the chance of you and your home escaping injury is very good. If, however, you are within the destructive range of the bomb, you could either be injured or uninjured, but your home would probably be partially or entirely destroyed. If you are injured, you will be cared for, *and your diabetic condition will have attention*—rest assured of that. If you are homeless and you have friends who will care for you, you need not worry.

PREPARE TO TAKE CARE OF YOURSELF completely if you are uninjured. Your family and friends should be taught enough about diabetes to take care of you in an emergency.

INSULIN

EVERY DIABETIC should know how to take insulin. There is plenty of insulin. *EVERY DIABETIC TAKING INSULIN* should have his usual *ONE* extra bottle in addition to current needs, and one *EXTRA* insulin syringe with two needles. This is because insulin is your best friend and with it you have the best insurance there is. *Always use your oldest bottle first.* Regular insulin is superior to the other forms for emergency purposes. Carry a little case with your insulin syringe if you have one. If an emergency arises and you must change from long-acting insulin (protamine zinc insulin, globin insulin, or NPH insulin) to regular insulin, take 2 doses of the regular, the morning dose equalling ⅗ of the number of units of your usual dose of the long-acting insulin, and the evening dose, ⅖ of the units. If you have no food, reduce your dose to ½ or ⅓ those amounts to avoid reactions. *Test your urine. Keep to your diet as nearly as possible in all circumstances.* It is better to eat too little than too much. Here is a simple emergency diet one can get under most any circumstances:—

EMERGENCY DIET

Breakfast	*Noon & Night*
Bread, 2 or 3 slices	Meat or cheese sandwich
Butter or margarine	or
Coffee and canned milk	Bread and butter alone, 3 slices,
or	or
In place of bread, a cereal and a can of milk	Meat and potatoes with such vegetables as are available (stew)

You can get along on this simple fare for several days if necessary.

In addition to the known cases of diabetes, potential diabetics may become frank clinical cases, and formerly mild cases controlled with diet alone may, on acco
injury, burns, or shock, require insulin for manage
and prevention of coma. About two-thirds of the dia
population requiring insulin use protamine zinc insu
some other long-acting preparation, and one-third
regular or crystalline insulin. Both types will be avail
so the usual regimen can be continued without reed
tion.

CASUALTIES

Probably one-half to two-thirds of the casualties wo
go to temporary or emergency hospitals, located in
available building, for later evacuation. Most inju
would result from mechanical causes, fire, or radic
tivity. Regular insulin should be used in most instan
either alone or supplementary to protamine zinc ins
or other available long-acting insulin. For routine g
ance, the urine test would have to suffice. Bened
solution is stable enough to permit stockpiling, an
addition supplies of syringes and needles should
stockpiled. For a readily available source of heat, ca
heat or hexamine tablets should be available. The sh
age of blood and plasma would probably be acute;
out blood and plasma and facilities, supplies, and
for intravenous therapy, recourse could be had to
administration of tolerated quantities of salt (1 level
spoonful), soda (½ teaspoonful), and water (1 qt.
first-aid treatment of burns.

Under these circumstances the time-honored ru
thumb for emergency insulin dosage should be h
if carried out every 4 hours in conjunction with the B
dict test. The doses indicated by results of the Be
test are as follows: negative (blue), no insulin
(green), 5 units insulin; 2+ (yellow), 10 units
3+ (brown or orange), *15* units insulin; and 4+ (
20 units insulin. These amounts indicate the app
dosage of insulin necessary to control glycosuria. As
as possible this dosage should be administered p
each meal and thereafter be suitably adjusted so
result in sugar-free urine specimens approximately
hours after each meal. The likelihood of improvem
carbohydrate tolerance after control of glycosuria an
covery from injury should be kept in mind. Insuli
actions should be carefully looked for, and when
occur, an appropriate readjustment of the dose shou
made. It is assumed by the committee that provisio
the treatment of the injured would be made by civ
fense organizations and that intravenous fluids, b
and surgical supplies would be provided.

EVACUEES

All doctors would be busy with the seriously w
and obviously there will be no opportunity for me
supervision of dietary problems. Dietitians and thei
must be trained to be familiar with these problems
how to deal with them. The diabetic should have
idea as to where to go and should try to exert some c
in the food he eats. After deducting those who wo
homes or be evacuated by civil defense authoriti
other cities, a residue would remain who would have
housed and fed. In emergency shelters, dietitian

uld assist the diabetics in their choice of food and in the sting of their urine. Furthermore, those who have no ringes should report to civil defense health services for sistance. If dietitian aids are available, the plan for ring for diabetics and other evacuees needing dietetic lp could be made very flexible.

DIABETIC DIETS IN WARTIME

Administrative Problems.—Thousands of injured peo- e would be too sick to feed themselves. In fact, it has en demonstrated many times that to maintain the pa- ent, the most important factor is to have someone to e to it that he eats what is presented to him. In the case a diabetic this is doubly important. We propose, there- re, that civilian dietitian aids be trained (1) to serve od, and to feed the patient when necessary, and (2) to st the urine and under supervision to give insulin.

Civilian defense training programs should take ad- intage of the skills of graduate dietitians, an intelligent oup which has had a great deal of training in admini- ration of diets. Furthermore, many of them have had ities requiring teaching experience. Graduate dietitians ould then be given a short course prepared by the direc- r of nutrition and his aids, the latter to be physicians ith practical experience in the administration of diets. he dietitians should be trained particularly in handling e problems of the hospital patient.

Civil defense organizations should also recruit young omen of at least high school education who are inter- sted in dietetics. Dietitian instructors from the local ssociation of dietitians, selected by the director of nu- ition, should conduct classes for dietitian aids. They ould be taught (1) how to serve sick people and per- iade them to eat; (2) the principles underlying the diets hich have been planned; and (3) how to examine urine nd how to administer insulin to diabetics.

The Nutritional Value of Diabetic Diets.—The dia- tic diets used in this country can be classified into three pes. The first type is used by the great majority of phy- cians. It may be called the "moderate" diabetic diet be- use in the use of both fat and carbohydrate, the term moderate" is applicable. Protein, 1 gm. per kilogram, nd carbohydrate, 120 to 250 gm., are used. Fat makes p 40% to 55% of the calories. The only change in is diet from the normal is that fat in the normal diet sually amounts to 35% of the calories, and carbohy- rate 50%. These figures are reversed in the diabetic diet. he quantity of protein in such diets meets all require- ents. Calcium is largely supplied by a pint of milk; the itamins should be supplied in more than sufficient uantities. Actually, the shift from carbohydrate to fat alories in the amounts represented by these diets does ot raise any nutritional problems.

The second type of diet most commonly used is the igh carbohydrate—low fat type. In this diet fats make p 20 to 25% of the calories and carbohydrate 60%. hus in diets containing between 1,600 and 2,400 cal- ries, the carbohydrate intake amounts to 240 to 380 gm. er day. It is important to use the limited amount of fat the greatest advantage nutritionally. Probably it is best supply the fat in the form of eggs and whole milk. Then fat meats, cheese (except cottage cheese), and butter can be used only in very small amounts. Vitamin A will be largely in the form of carotene.

The third type is indistinguishable from the normal diet and is called the unrestricted type of diabetic diet.

Nutritionally, diabetic diets should be adequate. Whether they are or not depends on whether the rules for good nutrition are followed. These rules are really no more and no less important to the diabetic than they are to the nondiabetic.

WARTIME FOOD RESTRICTIONS AND THE DIABETIC DIET

At this time, one can do little more than anticipate the restrictions that may occur. The experiences of the last war provide the basis for this short discussion. Three subjects are pertinent. 1. The added stimulus that wartime diets exert on the overweight patient to undertake reduction. 2. Important modifications of the diabetic diet that might be necessary in the event of food shortages and food rationing. 3. Special food allowances, if any, for the diabetic in the event of rationing.

Obesity.—Since so many diabetics, particularly those past 50, are overweight, the question arises as to whether the dietary restrictions caused by war do not make it important for the physician to urge more strenuously than ever that the overweight diabetic reduce. This is particularly important inasmuch as many of the restrictions to be expected tend to reduce the amount of available noncarbohydrate foods and increase the proportion of carbohydrate foods. The best solution here would seem to be a reduction in the amount of food eaten. All thoughtful physicians agree that a slow reduction of weight to a level corresponding to the Metropolitan Life Insurance Company's table is a great aid to the health of the diabetic. However, one must keep in mind that the diabetic is a working member of society and that his ability to work should have first consideration. Therefore, the physician must bear the responsibility of dealing with the question of reducing in the individual case. Even if this is true, the general statement that reduction of weight improves the health of the diabetic and increases his productivity seems justified.

Fat Shortages.—The majority of physicians in this country use the moderate type of diet outlined above, with 40 to 55% of the calories derived from fat. It is important to decide whether this amount can and should be reduced. The diets during wartime include a larger number of calories from carbohydrate. In other words, it must be decided whether it is wise to change the diets used by the majority of physicians and urge them to adopt the lower fat and higher carbohydrate type. This policy seems unwise even if there should be considerable fat shortage, because it would make for confusion on the part of both doctor and patient. The diets which have the approval of the majority of physicians should be maintained. In the event of rationing and scarcity of fat, the physicians should nevertheless have the privilege of prescribing it in diabetic diets to the extent of 35% of the calories.

Rationing and Diabetic Diets.—During World War II fats, meats, sugar and canned goods were rationed. Should the diabetic be allowed extra ration points in these categories?

Meats: Because the usual diabetic diet does not contain as much cereal, breadstuffs, beans, and potato as the nondiabetic diet, the patient obtains more protein from meats. The sources of protein in the diabetic diets are meats, milk products, and breadstuffs in that order. But since we classify fish as meat and since it is not usually rationed, the diabetic often can get his protein from fish. Cheese, eggs and milk, if they are available and unrationed, are also excellent meat substitutes. Under normal conditions, it is true, the diabetic does eat more protein in the form of beef and pork than the nondiabetic; the result is that meat rationing is somewhat harder on the diabetic than on the nondiabetic.

Fats: Extra fat points are justifiable if the diabetic is not obese, or the total of basal and work calories is above 2,000. More specific statements can be made only if rationing is instituted.

Canned Goods: Water-packed fruits probably would not be available in wartime. Diabetics should be made aware of the desirability of home canning of both fruits and vegetables. In the light of probable wartime restrictions of enriched cereals, diabetics should be allowed more canned vegetables than nondiabetics.

DISSEMINATION OF INFORMATION

It is evident that the special requirements of our diabetic population of one million persons must be integrated into the civil defense program as a whole if this large segment is to be protected and maintained in its normal state of productivity in the national effort. The government services have already demonstrated their awareness of the problem, as have the National Health Council and the Council on National Emergency Medical Service of the American Medical Association. Our purpose here is not to discuss the logistics of procuring and distributing food and insulin to the thousands of potential diabetic casualties, but to point out their special needs so that measures for their care can be formulated and incorporated into the civil defense plans—federal, state, and local.

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The Patient's Response.—In the words of Hippocrates, "the patient must cooperate with the physician in combating the disease." With advances in medicine are we passing away from this simple truth? Are we becoming more and more imbued with those specific cures and treatments which we shoot at disease like so many magic bullets? Do we not sometimes forget that these cures still demand a response from the patient which it is our duty to explain to him and to demand? Disease can never be dissociated from the individual. In much of medicine there is no specific cure, but there are ways and conditions of life which affect the basic issues of health and immunity. Their ordering is a prescription just as truly as anything written on a form, and it is a prescription to which you as wise doctors will often resort.—Charles Cameron, M.D., The Physician and His Art, *Lancet*, Aug. 25, 1951.

BUREAU OF MEDICAL ECONOMIC RESEARCH

MEDICAL CARE EXPENDITURES, PRICES AND QUANTITY, 1930-1950

Frank G. Dickinson, Ph.D.
Director, Bureau of Medical Economic Research

*This is the fifth in a series of publications of the Bureau
Medical Economic Research on personal consumer expendit
for medical care in relation to expenditures for other items in t
consumer's budget.*[1] *These publications are based on the d
published yearly by the National Income Division of the Of
of Business Economics, United States Department of Commen
in the Survey of Current Business. They contain data for
years 1929-1949. The most recent data compiled by the Dep
ment of Commerce is presented in National Income and Prod
of the United States, 1929-1950: 1951 Supplement to the Surv
of Current Business. This edition contains, in addition to
previously published material, data for the year 1950 and revi
data for 1948 and 1949. Since the Bureau of Medical Econon
Research has already presented yearly data for the period 19
through 1949, the present bulletin will contain data for 19
1935-1939, 1940, 1945, and 1950, and the revised data for 1
and 1949.*

PERSONAL CONSUMER EXPENDITURES

How great is the demand for medical care in the United Stat
Medical care is such a vital service that one is tempted to
"There is no measure of the demand for medical care." W
the *need* for medical service may be incalculable—as indee
the need for most goods and services—medical service is
economic good and as such has a *demand* which can be m
ured. If medical care were available in unlimited quantities
for example, air is, it would be a free and not an economic g
It would have no price, just as air has no price. The suppl
medical care, however, is not unlimited. It requires the serv
of people who have livings to earn and requires facilities w
must be purchased and maintained; and the amount and qu
of these personnel and facilities depend to a large degree on
amount of money people are willing to spend for them. Whe
the bill is paid by individual consumers, by insurance compa
by government agencies, or by physicians giving "free" serv
it must be paid. A complete measure of the demand for mec
care would require a vast amount of information on what wo
be spent if medical care prices were different in addition to
showing the amounts that are being currently spent for med
care at current prices. In this limited sense, the amount spen
consumers for medical care is the measure of their demand
medical care—the "market" demand. Since consumer dem
represents the greatest portion of the total demand for med
services, the market demand for medical care is largely refle
in the amounts of personal consumer expenditures for med
care; these exclude expenditures by agencies of local, state,
federal government.[2] According to Department of Comm
estimates, Americans spent \$8.5 billion on medical care in 1
(Table 1 and Chart 1). At the same time the expenditures for
goods and services were \$193.6 billion. Thus expenditures
medical care in 1950 constituted 4.4% of the total amount s

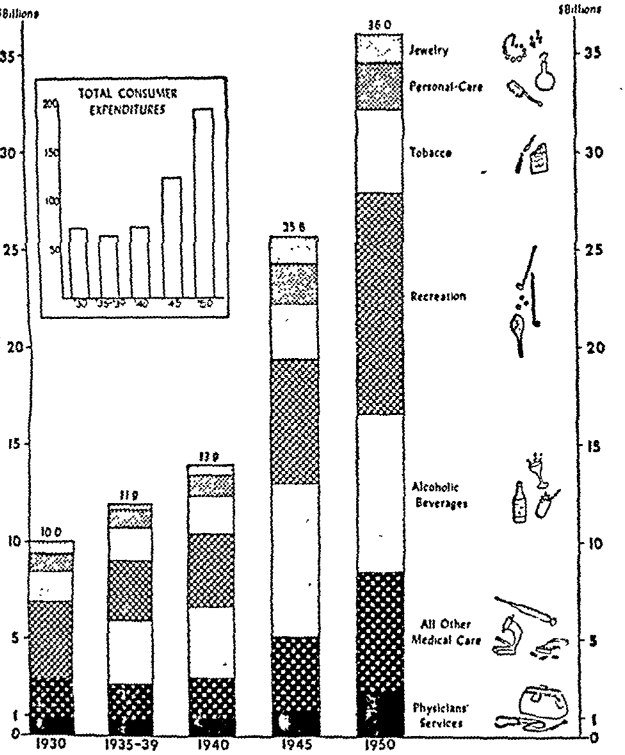
Janice Oberman and Ruth Janulis, research assistants in the Burea
Medical Economic Research, assisted in the preparation of this study

This article with two additional charts and six additional tables
been preprinted as Bulletin 87 of the Bureau of Medical Economic
search. A copy will be sent on request to the Bureau, 535 N. Dearb
St., Chicago 10.

[1] The four previous publications are Bulletin 60, Is Medical Care
pensive? (Sept.) 1947; Bulletin 66, The Cost and Quantity of Medical C
in the United States (Sept.) 1948; Bulletin 72, 1949 Supplement to Bull
66: The Cost and Quantity of Medical Care in the United States (D
1949; and *Miscellaneous Publication* M-37, Latest Data on Personal C
sumer Expenditures in the United States (Aug.) 1950.

on all goods and services in the consumer's budget; that is, the American people spent roughly 96% of their budgets for items other than medical care (Table 2). In 1930, expenditures for medical care were $2.9 billion while total consumer expenditures were $70.8 billion; medical care expenditures equaled 4.1% of total consumer expenditures. In 1935-1939, the period commonly used as a base for the purpose of statistical comparisons, average annual expenditures for medical care were $2.6 billion and total consumer expenditures, $63.6 billion; medical expenditures were 4.2% of total consumer expenditures. As a matter of fact, for every year since consumer expenditure data were first compiled, the proportion of the consumer's budget spent for medical care has fluctuated narrowly around 4%. The rise from 4.2% to 4.4% between 1945 and 1950 largely reflects wartime conditions in 1945, the tremendous increase in the number of births in the postwar years, the rapid rise in hospital room rates, and the increased use of hospitals.

Of the $8.5 billion spent by consumers on medical care in 1950, $2.4 billion was spent for physicians' services, $2.0 billion for hospitals, $1.4 billion for drugs and sundries, $1.0 billion for dentists' services, and $1.7 billion for "all other medical care."



Source: Survey of Current Business, 1951 National Income Supplement.

Chart 1.—Selected consumer expenditures in the United States, 1930-1950 (Table 1).

If the total amount of the expenditures for medical care in 1950 is set equal to one dollar, "the medical care dollar," 28.1 cents was spent for physicians' services, 23.1 cents for hospitals, 17.2 cents for drugs and sundries, 11.7 cents for dentists' services, and 19.9 cents for "all other medical care" (Table 3 and Chart 2). This compares with 31.8 cents spent for physicians' services in 1930, 13.9 cents for hospitals, 19.5 cents for drugs and sundries, 15.9 cents for dentists' services, and 18.9 cents for "all other medical care." Thus, over the 20-year-period, the physicians' average share of the medical care dollar fell 12%, the hospitals' share rose 66%, and the dentists' share fell 26%; the portion spent on drugs and sundries dropped 12% and the portion on "all other medical care" rose 5%. If the base period 1935-1939 is taken as a point of reference, the trend is found to be generally the same. The physicians' share of the medical care dollar fell 10%, the hospitals' share rose 37%, the dentists' share fell 10%, the portion for drugs and sundries fell 17%, and the portion for "all other medical care" rose 9%.[3] Thus, within the medical care group, the portions spent on physicians, dentists, and drugs and sundries have shown a continuous decline, while the portion spent on hospitals has been increasing.

Another view of the changes in consumer expenditure patterns is presented in the index numbers (1935-1939=100) in Table 5. The index for total consumer expenditures was 305 in 1950, for medical care 320, for physicians' services 289, for hospitals 436, for drugs and sundries 266, for dentists' services 287, and for "all other medical care" 348. While the amounts in billions of dollars spent for each of these medical care items have increased, total consumer expenditures have increased so rapidly that the percentage of total consumer expenditures spent for these medical care items has actually decreased except for hospitals and some of the minor items included in "all other medical care." The fact that the amount spent for medical care (320) has risen more rapidly than the amount spent for total consumer expenditures (305) is, therefore, due to the extremely sharp rise in the amount spent on hospitals and, to a much smaller extent, on the considerable increase in the amount spent on "all other medical care."

How does the demand for medical care compare with the demand for other items in the consumer's budget? The Department of Commerce divides its estimates of personal consumer expenditures into 12 broad groups. Among these, the largest expenditures were for food and tobacco, equaling 33.8% of total consumer expenditures in 1950. The other groups for which expenditures were large were clothing, accessories, and jewelry, constituting 11.8% of the consumer's budget, housing 10.3%, household operation 13.7%, and transportation 11.7%. The lowest expenditures were for private education and research, or 0.9% of total consumer expenditures. Medical care and death expenses constituted 4.9% of the consumer's budget.[4]

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[2] Personal consumer expenditures as defined in the Department of Commerce estimates include expenditures made by the American people as individuals, but not as taxpayers; that is, these estimates do not cover expenditures made by government. The Department of Commerce personal consumer expenditure series covers 206 items (counting subgroups) which are classified into 12 main groups. The sixth of these groups, "medical care and death expenses," includes physicians' services, hospitals, drugs and sundries, dentists' services, 11 relatively minor medical care items referred to herein as "all other medical care," and three death expense items which will be largely eliminated from this analysis.

The Department of Commerce's estimates for hospitals are based on the operating expenses of nonprofit hospitals and include payments by patients (or insurers) only in the case of proprietary hospitals. Expenditures for physicians' and dentists' services are estimated from the gross receipts which practitioners in independent private practice derive from individuals; the totals for these items do not include such items as payments to practitioners in government hospitals or payments by insurance companies and by businesses paying on a fee basis. Consumer expenditures for x-ray and general laboratory services are included in the amounts for hospitals when rendered by hospital laboratories and in the amounts for physicians' services when rendered by private laboratories.

The computation of the amounts for services of physicians and dentists involves three factors: the number of physicians and dentists in independent professional practice, the average gross income from professional practice and the percentage of gross income derived from personal consumer expenditures as distinguished from receipts such as those for services rendered to agencies of government. The Bureau of the Census has not yet made available the results of its 1950 count of physicians and dentists in independent practice; nor has the analysis of the returns from the physicians' income survey developed this percentage for 1949. The estimates of personal consumer expenditures for the services of physicians and dentists in recent years will, therefore, be revised by the Department of Commerce when these enumerations are made available and when the analysis of the returns in the physicians' incomes survey has been completed. The recent surveys of the incomes of the members of these two professions conducted by the Department of Commerce with the cooperation of the American Medical Association and of the American Dental Association have established excellent statistical information on average gross (and net) incomes. (See: Dickinson, F. G., and Bradley, C. E.: Survey of Physicians' Incomes, J. A. M. A. **146:** 1249 [July 28] 1951, reprinted as Bulletin 84, Bureau of Medical Economic Research, American Medical Association, 1951. This bulletin summarizes and interprets data presented in: Weinfeld, W., Income of Physicians, Survey of Current Business, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce **31:** 9 [July] 1951).

[3] This broad category includes 11 items for which expenditures are relatively small. As Table 4 shows, the proportions of the medical care dollar allocated to most of these items have remained relatively constant since 1935-1939. The principal changes have occurred in the expenditures for the three items shown in rows 8, 12, and 14. Personal consumer expenditures for "private duty trained nurses" declined from 2.4% of total expenditures for medical care in the base period to 1.3% in 1950. The percentage for "net payments to group hospitalization and health associations" increased from 0.2 to 1.7 and the percentage for "accident and health insurance—net payments" increased from 3.7 to 5.6. The sharp increase in these latter two items reflects the tremendous growth of voluntary health insurance. The expenditures described in these two rows refer to the overhead cost of operating these insurance plans; the amounts shown are approximately the excess of the premiums received over the benefits paid.

Much more meaningful, however, are comparisons of medical care with certain individual items which bear some general resemblance to the medical care items in magnitude of expenditure and frequency of purchase. Of the $193.6 billion spent on all items in 1950, $8.1 billion, or 4.2% of the total, was spent for alcoholic beverages; $11.3 billion, or 5.8%, for recreation; $4.4 billion, or 2.3%, for tobacco; $2.3 billion, or 1.2%, for personal care; and $1.5 billion, or 0.8%, for jewelry. Thus, in 1950 Americans spent about as much for alcohol as for all types and kinds of medical care. They spent over a third more for recreation. They spent as much for personal care and almost twice as much for tobacco as they did for physicians' services, and they spent slightly more for jewelry than for drugs and sundries. The American people have chosen to spend their budgets in this manner. Each person deciding in his own way how he should spend his income has determined the market demand for every item. Americans spent only 4% of their money for medical care not because they did not have more to spend, but because they thought they could get what they wanted most by spending 96% of their money on items other than medical care—items including jewelry, alcoholic beverages, and tobacco. The consumer—the dictator in a free economy—has made his choice. In fact, "personal savings" in 1950, the amount consumers had left over after spending $193.6 billion, was $10.7 billion! The personal savings of 1950 and those accumulated over the years constitute spending ability which consumers can draw upon as they wish. T accumulated savings in 1950 were very large even after allo for inflated values and the universal failure to consider go ment bonds as a liability as well as an asset.[5] It is most u tunate that so many discussions of ability to purchase me care or other goods and services assume that current inco the sole measure of purchasing power. An expensive illne among the rainy days for which people seek to make provisio saving. As a direct result of ignoring the existence of t accumulated savings—savings which some political leaders p to with great pride—some persons have concluded that the m cal and hospital bills not covered by prepayment insurance be postpaid out of current income. This unrealistic approa the question of ability to pay the costs of modern medical deserves more attention than can be given in this article.

TABLE 1.—*Selected Consumer Expenditures in the United States for Selected Years, 1930-1950*
Billions of Dollars

	Medical Care											
Year	Total Medical Care	Physicians' Services	Hospitals	Drugs and Sundries	Dentists' Services	All Other Medical Care	Alcoholic Beverages	Recreation	Tobacco	Personal Care	Jewelry	Total Columns (3) through (12)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1930	$2.9	$0.9	$0.4	$0.6	$0.5	$0.6	...	$ 4.0	$1.5	$1.0	$0.6	$10.0
1935-1939 (average)	2.6	0.8	0.5	0.5	0.3	0.5	$3.2	3.1	1.6	0.9	0.3	11.9
1940	3.1	0.9	0.5	0.6	0.4	0.6	3.6	3.7	1.9	1.1	0.5	13.9
1945	5.1	1.3	0.9	1.2	0.6	1.1	7.8	6.3	2.9	2.1	1.3	25.6
1948	7.5	2.1	1.6	1.4	0.9	1.5	8.2	10.0	4.1	2.2	1.5	33.5
1949	7.9	2.3	1.7	1.4	0.9	1.6	7.9	10.3	4.3	2.2	1.4	34.0
1950	8.5	2.4	2.0	1.4	1.0	1.7	8.1	11.3	4.4	2.3	1.5	36.0

The source of the expenditure data in dollar amounts in this table and those which follow is National Income and Product of the United States, 1929-1950: 1951 Supplement to the Survey of Current Business, United States Department of Commerce, Bureau of Foreign and Domestic Commerce, 1951, Table 30, pp. 192-198. The data, which are given in *millions of dollars in the source, have been rounded to tenths of billions* of dollars in the tables. The percentage data were computed from the dollar amounts in millions.

Brief descriptions of most of the items, arranged by column numbers, are presented below:

(2) Total Medical Care: Includes physicians' services, hospitals, drug preparations and sundries, dentists' services, and all other medical care items; rows 1-15 of Group VI (p. 194) in source.

(4) Hospitals: Includes payments by patients to proprietary hospitals and sanitariums and operating expenses of nonprofit hospitals and sanitariums; row 11 of Group VI in source.

(7) All Other Medical Care: Includes ophthalmic products and orthopedic appliances, osteopathic physicians, chiropractors, chiropodists and podiatrists, private duty trained nurses, practical nurses and midwives, miscellaneous curative and healing professi payments to group hospitalization and health asso student fees for medical care, accident and health insura payments, mutual accident and sick benefit associations— ments; rows 2, 5-10, 12-15 of Group VI in source.

(8) Alcoholic Beverages: *Includes distilled spirits, wine, a* packaged form and by the drink; footnote 1 in source.

(9) Recreation: Includes admissions to specified spectator ments, pari-mutuel net receipts, nonvending coin m receipts minus payoff, specified commercial participant ments, informal recreation, flowers, seeds and potted plan fees, clubs, commercial amusements; Group IX in source

(10) Tobacco: Includes tobacco products and smoking supplie of Group I in source.

(11) Personal Care: Includes toilet articles and preparations shop services, beauty parlors, baths and masseurs; G in source.

(12) Jewelry: Includes purchases of jewelry and watches, wat and jewelry repairs; rows 12-13 of Group II in source.

TABLE 2.—*Selected Consumer Expenditures as a Percentage of Total Consumer Expenditures, 1930-1950*

		Medical Care										
Year	Total Consumer Expenditures	Total Medical Care	Physicians' Services	Hospitals	Drugs and Sundries	Dentists' Services	All Other Medical Care	Alcoholic Beverages	Recreation	Tobacco	Personal Care	Jewelry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1930	100.0%	4.1%	1.3%	0.6%	0.8%	0.7%	0.8%	...	5.6%	2.1%	1.5%	0.8%
1935-1939 (average)	100.0	4.2	1.3	0.7	0.9	0.5	0.8	5.0%	5.0	2.6	1.4	0.5
1940	100.0	4.3	1.3	0.7	0.9	0.6	0.8	5.1	5.2	2.6	1.5	0.6
1945	100.0	4.2	1.1	0.8	0.9	0.5	0.9	6.3	5.1	2.4	1.7	1.1
1948	100.0	4.2	1.2	0.9	0.8	0.5	0.8	4.6	5.6	2.3	1.3	0.8
1949	100.0	4.4	1.3	1.0	0.8	0.5	0.9	4.4	5.7	2.4	1.2	0.8
1950	100.0	4.4	1.2	1.0	0.7	0.5	0.9	4.2	5.8	2.3	1.2	0.8

PRICES AND WAGES COMPARED

While expenditures for medical care and expenditures goods and services in the consumer's budget increased at a mately the same rate, medical prices lagged considerably prices in general. By 1950, the price of all goods and s as measured by the U. S. Bureau of Labor Statistic's Con Price Index[6] was up 72% since 1935-1939; the price of care and drugs had risen only 48% (Chart 3). Physicia were up 40%, general practitioners' fees 40%, and s and specialists' fees 41%. Of all the medical care items, rates alone rose more rapidly than the price of all go services—up 135% in 1950. At the same time, howev these medical care items underwent a relatively small i in price, average weekly earnings mounted rapidly. Acco the U. S. Bureau of Labor Statistics[7] average weekly ear

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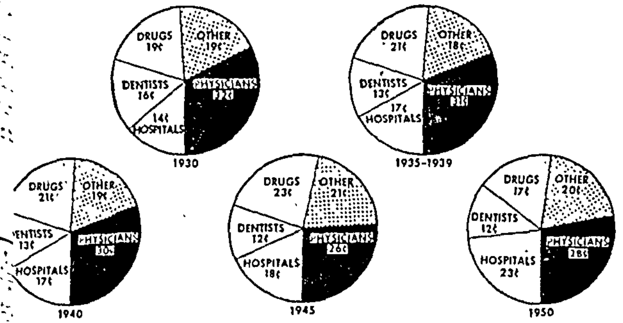
4. Death expenses (funeral and burial expenses, cemeteries and crematories, monuments and tombstones) accounted for $1.1 billion of consumer expenditures in 1950, or 0.6% of total consumers expenditures. In the base period they accounted for 0.8% of total consumer expenditures.

5. See the discussion of this obscure point in Dickinson, F. G.: How Rich Are You? Bureau Bulletin 65 (Sept.) 1948.

oduction workers in manufacturing industries increased 165% tween 1935-1939 and 1950. With medical care and drug prices ing only 48%, just 56% of a week's wages in 1950 was necesry to purchase the same amount of medical care as a whole ek's wages in 1935-1939 (Chart 4). Only 53% of a week's ges in 1950 was necessary to purchase the same amount of ysicians' services as a whole week's wages in the base period. r the same amount of general practitioners' services or for the same amount of surgeons' and specialists' services a person would have to work only 53% as long in 1950 as in 1935-1939. The hospital services purchased with a week's wages in 1935-1939 would require 89% of a week's wages in 1950. These percentages do not, of course, reflect any changes in the average amount of services or drugs or in the average length of hospital stay required for a given illness.

How do these percentages compare with the percentages of a week's wages necessary to purchase other items in the consumer's budget? For the same amount of food as could be purchased with a week's wages in 1935-1939, 77% of a week's wages would be necessary in 1950; for the same amount of recreation, 62%; personal care, 67%; transportation, 61%; women's housedresses, cotton, 103%; rent, 50%; and for the same amounts of all goods and services, 65%. Since average weekly earnings rose so high in comparison to the Consumers' Price Index, less than a week's wages would be required to purchase most of these other items in the consumer's budget. Except for rent, however, the percentages are greater than those for medical care. This is to be expected, since medical prices rose less rapidly than the prices of most items in the consumer's budget.

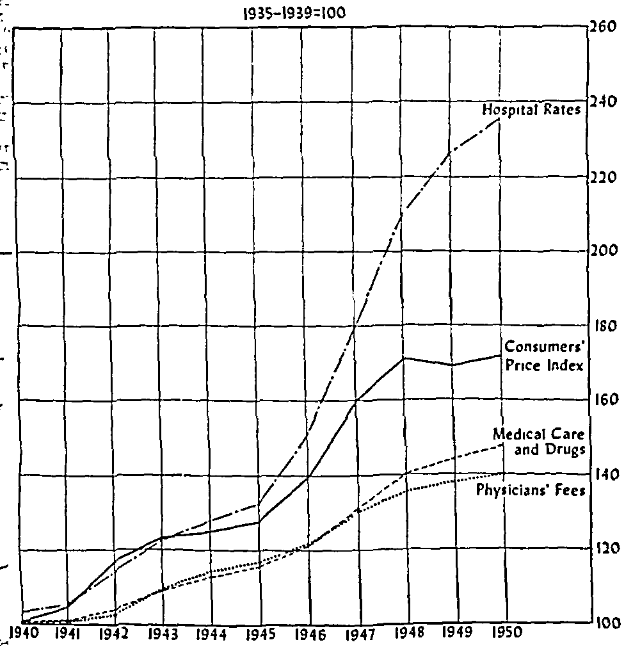


rce: Survey of Current Business 1951, National Income Supplement.

Chart 2.—The medical care dollar (Table 3).

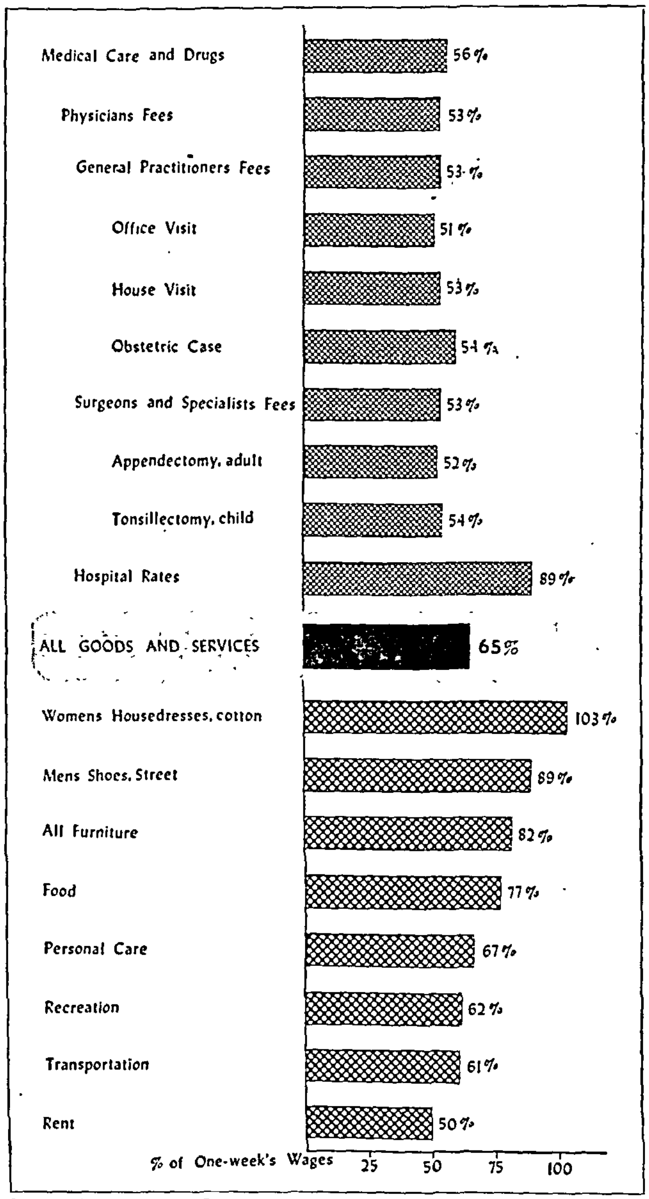
TABLE 3.—*Percentage Distribution of Expenditures for Medical Care in the United States, 1930-1950*

Year (1)	Total Medical Care (2)	Physicians' Services (3)	Hospitals (4)	Drugs and Sundries (5)	Dentists' Services (6)	All Other Medical Care (7)
30........	100.0%	31.8%	13.9%	19.5%	15.9%	18.9%
35-1939....	100.0	31.1	16.9	20.7	13.0	18.3
40........	100.0	29.7	17.1	20.8	13.6	18.8
45........	100.0	26.1	17.9	22.7	12.6	20.7
48........	100.0	28.6	21.2	18.8	12.0	19.4
49........	100.0	28.8	21.9	17.8	11.8	19.7
50........	100.0	28.1	23.1	17.2	11.7	19.9



Source: U. S. Bureau of Labor Statistics.

Chart 3.—Indexes of prices of physicians' fees, hospital rates, medical care and drugs, and the Consumers' Price Index, 1940-1950.



Source: U. S. Bureau of Labor Statistics.

Chart 4.—Percentage of one week's wages in 1950 required to purchase the amount of medical care and other items that could be purchased with one week's wages in 1935-1939.

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6. The Consumers' Price Index measures monthly the changes since 1935-1939 in the prices of fixed quantities of goods and services normally purchased by moderate-income families in large cities. A more complete analysis of this Index and the indexes of medical care items is presented in Medical Care Prices and the Cost of Living, J. A. M. A. **147**: 258 (Sept. 15) 1951, reprinted as Bulletin 86, Bureau of Medical Economic Research, American Medical Association, 1951.

7. Handbook of Labor Statistics, 1947 Edition, Bureau of Labor Statistics, U. S. Department of Labor, Buletin No. 916, Table C-1, p. 54; data for 1950 from Monthly Labor Review, Bureau of Labor Statistics, U. S. Department of Labor **73**: 235 (Aug.) 1951.

QUANTITY

The quantity of a given item purchased during a particular year can be obtained by dividing the year's expenditures for that item by its average price. For example, $\frac{\text{expenditures for bread}}{\text{average price per loaf}}$ = the number of loaves purchased during the year. Similarly, a rough index of quantity for an item can be obtained by dividing the index of the expenditures for that item by the corresponding index of the price of that item. When this procedure is followed, it is found that the index of the quantity of medical care rose from 1.0 in 1935-1939 to 2.2 in 1950. This crude ratio or index indicates that the total amount of medical care delivered to the American people has more than doubled since the base period. Because of a 17% increase in population during these years, the increase in quantity per person was somewhat less, or 85%.

Such indexes of quantity, however, have certain inherent limitations. Primary among these is the fact that consumer expenditures are estimated for the entire nation while the price indexes cover only moderate-income families in 34 large cities. Thus the purchases of consumers in upper and lower income groups and in less populous areas are included in the expenditure series but are not reflected in the price series. The question, however, is not whether medical care prices are usually higher or lower for these excluded groups and areas but whether the percentage rise was higher or lower since the base period. The entire price series is widely used by statisticians as a deflator of many dollar series in measuring quantity and is generally the basis of wage negotiations between employers and employees regarding the cost of living. But because of the chance of error resulting from such limitations, it would perhaps be more realistic to estimate that the per capita quantity of medical care received in 1950 was somewhat less than 85% greater than the quantity received a dozen years earlier.

TABLE 4.—*Eleven Items Composing "All Other Medical Care" Expenditures, 1935-1939, 1948, 1949, and 1950 In Billions of Dollars and as a Percentage of Total Medical Care Expenditures*

Expenditure Item (By row number in source)	1935-1939		1948		1949		1950	
	Billions of Dollars	Percentage of Total Medical Care	Billions of Dollars	Percentage of Total Medical Care	Billions of Dollars	Percentage of Total Medical Care	Billions of Dollars	Percentage of Total Medical Care
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ALL OTHER MEDICAL CARE	$0.483	18.3%	$1.455	19.4%	$1.554	19.7%	$1.682	19.9%
2. Ophthalmic products and orthopedic appliances	0.153	5.8	0.416	5.6	0.431	5.5	0.477	5.6
5. Osteopathic physicians	0.036	1.4	0.109	1.4	0.113	1.4	0.119	1.4
6. Chiropractors	0.032	1.2	0.084	1.1	0.088	1.1	0.093	1.1
7. Chiropodists and podiatrists	0.015	0.6	0.040	0.5	0.042	0.5	0.044	0.5
8. Private duty trained nurses	0.064	2.4	0.104	1.4	0.109	1.4	0.114	1.4
9. Practical nurses and midwives	0.045	1.7	0.096	1.3	0.098	1.2	0.111	1.3
10. Miscellaneous curative and healing professions	0.016	0.6	0.039	0.5	0.040	0.5	0.041	0.5
12. Net payments to group hospitalization and health associations	0.005	0.2	0.106	1.4	0.134	1.7	0.145	1.7
13. Student fees for medical care	0.002	0.1	0.004	0.1	0.004	0.1	0.004	0.1
14. Accident and health insurance—net payments	0.097	3.7	0.402	5.4	0.438	5.6	0.477	5.6
15. Mutual accident and sick benefit associations—net payments	0.019	0.7	0.055	0.7	0.057	0.7	0.057	0.7

TABLE 5.—*Selected Consumer Expenditures, 1930-1950, as a Percentage of the 1935-1939 Average*

Year	Medical Care						Alcoholic Beverages	Recreation	Tobacco	Personal Care	Jewelry	Total Columns (3) through (12)	Tota Consu Expe ture
	Total Medical Care	Physicians' Services	Hospitals	Drugs and Sundries	Dentists' Services	All Other Medical Care							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1930	110%	113%	90%	104%	134%	114%	.....	127%	89%	113%	170%	84%	111%
1935-1939 (average)	100	100	100	100	100	100	100%	100	100	100	100	100	100
1940	116	111	118	117	121	119	114	119	109	121	134	117	113
1945	195	163	206	214	188	220	243	201	180	227	383	215	191
1948	283	261	354	258	259	301	255	320	255	245	421	282	280
1919	298	276	385	256	270	322	248	327	262	242	407	286	283
1950	320	289	436	266	287	348	253	360	271	250	422	303	305

How have the quantity indexes for the individual medical care items behaved? If the same procedure is used, the resulting index of quantity for physicians' services is 2.1 for 1950, or twice as great as the quantity in 1935-1939. Again a more conservative estimate of the increase in quantity since the base period is warranted. After allowing for the gain in population and the shortcomings of the data for these computations, the increase in the per capita quantity in physicians' services received was at le
⅓ to ½.

These indexes can also be used to give a rough indication of the increase in the amount of services delivered per physician. According to the latest available data, the increase in the number of physicians between 1935-1939 and 1950 was 22%. If the index of the quantity of physicians' services is adjusted for this increase, it is found that the amount of services delivered per physician during these years increased about 7/10. A more conservative estimate would be an increase of 5/10. This undoubtedly demonstrates the increased capacity of the physician to care for patients made possible through the greatly expanded use of nurses and technical assistants, the introduction of wonder drugs, improved transportation, the increasing proportion of patients seen in the hospital and office, and other increases in technological efficiency.

The quantity index for hospital services in 1950 was 1.9, for dentists' services 1.9, and for drugs 2.1. Once again, the limitations of the data for this purpose should be considered.

There are many references in current economic and enginee ing literature to the increased output per manhour or per machi which has resulted from rapid technological changes in rece years. Our analysis of the quantity of medical services sugges but does not prove, that the rate of increase in output per pers working in the medical care field may exceed the comparat rate in the manufacture of automobiles, the production of coal, the transportation of commodities. It should be extremely cle to all students of medical economics that the supply of medic services can no longer be measured by counting the number active physicians, dentists, and nurses. The American people a enjoying the fruits of technological improvements in the field medicine just as in industry, agriculture, and transportation.

On the whole, these indexes indicate that the American peop in 1950 were receiving relatively more medical care for the money than they were in 1935-1939. But the great improvemen in the quality of medical care, which have made a given amou of services so much more effective today, can never be measure by quantity indexes. Such tremendous strides in our healt ogress as the sharp reduction in the number of maternal deaths 1,000 live births from about 5.0 in 1935-1939 to less than 1.0 1950 and the jump in life expectancy at birth from 59.5 years 1930 to more than 68 years in 1950 are not measured by exes of the quantity of medical care.

* * * *

Over the last 20 years, the American people have spent a con-nt proportion of their consumer budget, roughly 4%, for dical care. The demand for medical care has been small in nparison to the demand for other consumer items. It has been all, not because people could not afford more, but because y preferred to spend their budgets in this manner. In the past e could say that the irregularity and unpredictability of medical penses were greater deterrents to the purchase of medical re than the actual amount of the expenses. Today, however, widespread availability of hospital and medical insurance akes medical care a readily marketable item. A family can rchase a typical Blue Cross-Blue Shield membership, which ll pay the bulk of hospital and in-hospital medical bills for ughly 25 cents a day—the price of a package of cigarettes. surance helps a particular family to approach the 4% level, average for all families. With over half the population carry- some form of medical or hospital insurance, the small de- and for medical care certainly does not mean that people do t have the money for medical care, but that they are purchas- the amount they desire. And with the index of the prices of edical care, including the high hospital rates, lagging behind e Index of all consumer prices, they are receiving much more edical care for their money. In fact, average weekly earnings ve risen so much more rapidly than the cost of medical service at a production worker today can buy almost twice as much edical care with a week's wages as he could in 1935-1939. nd health progress has given him another dividend—more and etter years in which to earn. Today, in a period of general flation, the consumer is getting more and better medical care r the same proportion of his personal consumer expenditures.

COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry and the Council on Foods and Nutrition have authorized publication of the follow- ng statement.

R. T. Stormont, M.D., *Secretary*
Council on Pharmacy and Chemistry
James R. Wilson, M.D., *Secretary*
Council on Foods and Nutrition

FLUORIDATION OF WATER SUPPLIES

The Council on Pharmacy and Chemistry and the Council on Foods and Nutrition have been requested to state their opinion regarding the safety of fluoridation of water supplies, a procedure which has now been adopted by more than 140 cities.

The Councils are unaware of any evidence that fluoridation of community water supplies up to a concentration of one part per million would lead to structural changes in the bones or to an increase in the incidence of fractures. The only difficulty so far revealed is a possible increase in mottling of the tooth enamel. The available evidence based on thousands of observations indicates that the incidence of mottling of the enamel in children who drink water containing fluoride up to a concentration of one part in a million is minimal and detectable only by careful dental examination. It occurs only in a small percentage of children and is so slight as not to present a problem from the point of view of appearance or strength of the teeth. Evidence of toxicity other than the effect on enamel has not been reported in communities where the water supply has several times this concentration. After considering the evidence available at this time, the Councils believe that the use of drinking water containing up to one part per million of fluoride is safe. However, the use of products which are naturally high in fluoride content, such as bone meal tablets, or of lozenges, dentifrices, or chewing gum, to which fluoride has been added, should be avoided where the drinking water has been fluoridated. In places where children are subjected to warm temperatures and consequently drink large amounts of water, a lower concentration of fluoride may be necessary to avoid mottling of the teeth.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. Stormont, M.D., *Secretary.*

Phenylephrine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1951, p. 198).

Elixir Neo-Synephrine Hydrochloride: 473 cc. and 3.78 liter bottles. A flavored alcohol solution containing 1 mg. of phenylephrine hydrochloride in each cubic centimeter. U. S. Trademark 406,720. Winthrop-Stearns, Inc., New York.

Capsules Neo-Synephrine Hydrochloride: 10 mg. and 25 mg. U. S. Trademark 406,720. Winthrop-Stearns, Inc., New York.

Streptomycin-U.S.P. (See New and Nonofficial Remedies 1951, p. 132).

Streptomycin Sulfate: 5 cc., 12 cc., and 20 cc. vials. Powdered streptomycin sulfate equivalent in activity to 1 gm., 2 gm., and 5 gm. of streptomycin base, respectively. E. R. Squibb & Sons, New York.

Pertussis Vaccine-U.S.P. (See New and Nonofficial Remedies 1951, p. 389).

Pertussis Vaccine: 1.5 cc. (one immunization) and 7.5 cc. (5 immunizations) vials. 50,000 million *H. pertussis* per cubic centimeter. Preserved with thimerosal 1:10,000. Eli Lilly & Company, Indianapolis, Ind.

Butabarbital Sodium (See New and Nonofficial Remedies 1951, p. 240).

Powder Butabarbital Sodium: Bulk; for manufacturing use. Chemo Puro Manufacturing Corp., Long Island City, N. Y.

Sodium Dehydrocholate (See New and Nonofficial Remedies 1951, p. 316).

Solution Sodium Dehydrocholate 20%: 5 cc. and 10 cc. ampuls. E. S. Miller Laboratories, Inc., Los Angeles, Calif.

Sodium Caprylate (See New and Nonofficial Remedies 1951, p. 48).

Powder Sodium Caprylate: Bulk; for manufacturing use. Chemo Puro Manufacturing Corp., Long Island City, N. Y.

Methylthiouracil (See New and Nonofficial Remedies 1951, p. 404).

Powder Methylthiouracil: Bulk; for manufacturing use. Chemo Puro Mfg. Corporation, Long Island City, N. Y.

Sulfadiazine-U.S.P. (See New and Nonofficial Remedies 1951, p. 96).

Tablets Sulfadiazine: 0.5 gm. Van Pelt & Brown, Inc., Richmond, Va.

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LABORATORY CONTROL OF ANTIBIOTIC THERAPY

The problems of antibiotic therapy have been multiplied by the increase in the number of commercially available antibiotics and in the number of bacterial strains resistant to one or more of them. Selection of the most effective antibiotic for treatment of a given infection is frequently difficult. Confronted with an infection of uncertain bacteriologic origin, the clinician has several courses open to him. He may attempt to deduce the causative agent from the clinical symptoms and administer the antibiotic known to be effective against most strains of that organism. In some cases this approach is successful, but often the first drug tried is ineffective because of lack of susceptibility of the infecting agent. Valuable time may thus be lost in blind clinical trial, and avoidable complications may occur. To prevent this, many clinicians routinely determine the infecting organism bacteriologically, so that they can select the appropriate antibiotic with greater assurance. Others believe it impractical to determine the antibiotic of choice from standard tables because of the frequent occurrence of resistant strains within some species. These workers maintain that maximum efficiency in antibiotic therapy can be obtained only by routine determination of the in vitro sensitivity of the causative organism to the available antibiotics.

Theoretically the last approach would appear to be the most desirable, but there are practical objections. Perhaps the most serious is the observation that clinical results do not always parallel laboratory results in antibiotic testing. Another objection is that the various sensitivity tests are not as accurate or as reliable as many clinicians believe. It has been shown, for example, that the results of most of the currently used tests can be varied at will by altering one of the following factors: (1) size of the inoculum, (2) period of incubation, and (3) choice of complete or partial inhibition as the end point of the tests.[1] Variations in media may introduce further discrepancies.[2] Obviously all test conditions must be rigidly controlled if the tests are to have significance or if the results of two laboratories are to be compared. E with such control the serial dilution methods are acc only within the range of a two-fold dilution of the a biotic,[1] and the antibiotic disk technique gives re that vary in triplicate as much as ±25%.[3] Thus no the methods lends itself to accurate quantitation.

Moreover, when several antibiotics are tested ag a single organism by a single technique, compariso results may be misleading. Variations in any of the conditions mentioned may have different effects on ferent antibiotics,[1] so that the relative sensitivity of organism to each antibiotic may be changed under ferent conditions. According to Patrick,[4] even rigidly controlled conditions comparisons of bacte sensitivity to two or more antibiotics cannot be made rectly by the antibiotic disk method as ordinarily formed. The antibiotic that produces the largest zon inhibition of bacterial growth on the culture plate is necessarily the one to which the test organism is sensitive. The size of the inhibition zone may be m fied by other factors, including the diffusibility of the a biotic through the agar and the concentration of antibiotic in the tablet or disk. While the diameter of zone of inhibition increases with the concentratio the antibiotic above the minimal inhibitory tion, it increases more rapidly for some antibiotics for others,[1] so that relative sensitivity values may ch when disks of different concentrations are used.

Attempts to rectify this situation have been made least two groups of workers. Patrick and associates[4] determined simultaneously the inhibition zones obt by the antibiotic disk method and the minimum concentrations obtained by the tube dilution test and expressed the former roughly in terms of the latter. permits direct comparison of sensitivities in tern tube-dilution values. Spaulding and Anderson,[3] o other hand, have preferred to adjust by trial and concentration of each antibiotic disk to the point in their hands, the results of the disk technique an tube-dilution method parallel each other and no co sion factors are needed. If these two modifications disk technique are found to be generally applicable, may increase the clinical usefulness of the method. J son and Finland,[1] however, caution that compa between different methods are unreliable. In an exte study they found variations of 64 to 128-fold in values obtained by different methods for the sensitivi a given organism to aureomycin. Corresponding ations with respect to terramycin were 4 to 32-fold, with respect to streptomycin, 8 to 64-fold.

It is apparent that there are many pitfalls in the a cation of sensitivity tests to the clinical control of biotic therapy. Further refinements of technique and relation of clinical and laboratory results are before the total picture can be clarified. In the a reasonable approach seems to be that of Jackson Finland,[1] who regard sensitivity tests as performed in ordinary clinical laboratory as only general qualit guides which distinguish susceptible from nonsuscep organisms. Even this distinction may not be made by antibiotic disk method unless the proper range of biotic concentrations is employed.[5] Jackson and Fin lieve that it is much more important to determine the iologic agent accurately than to perform routine sensi-vity tests. Since some species, such as pneumococci, nococci, and group A streptococci, are more or less iform in their susceptibility to any given antibiotic,[6] fections caused by these organisms can be treated with-ut resort to sensitivity tests. On the other hand, such sts are indicated when the infection is caused by aphylococci or enterococci, or other species, different rains of which have been shown to exhibit wide vari-ions in their susceptibility to antibiotics.[7] As a further ecaution, sensitivity tests might be performed as recom-ended by Spaulding and Anderson[8] in all fulminating fections, in infections not responding after 72 hours of tibiotic therapy, and in those showing relapses during erapy or evidence of changes in bacterial flora.

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[1] Jackson, G. G., and Finland, M.: Comparison of Methods for Determining Sensitivity of Bacteria to Antibiotics in Vitro, A. M. A. Arch. Int. Med. 88: 446 (Oct.) 1951.

[2] Joslyn, D. A., and Galbraith, M.: A Turbidimetric Method for the Assay of Antibiotics, J. Bact. 59: 711, 1950.

[3] Spaulding, E. H., and Anderson, T. G.: Selection of Antimicrobial Agents by Laboratory Means, J. A. M. A. 147: 1336 (Dec. 1) 1951.

[4] Patrick, W. C.; Craig, G. H., and Bachman, M. C.: Diameter of Inhibition Zones Correlated with Tube Sensitivities Using Six Antibiotics, Antibiotics and Chemotherapy 1: 133, 1951.

ETABOLIC ASPECTS OF TREPTOMYCIN RESISTANCE

Although the exact mechanism by which streptomycin fects its antimicrobial action is not known, there is con-derable evidence to indicate that it involves the inhibi-on of certain metabolic activities of nonproliferating lls of susceptible strains of bacteria.[1] Consequently, forts have been directed toward demonstrating differ-nces in metabolic activities between streptomycin-sistant and streptomycin-sensitive bacteria. Thus Selig-ann and Wassermann[2] reported that acquired resist-nce is accompanied by certain marked alterations in etabolic activities which they attributed to damage to nzyme systems. Umbreit[3] found that susceptible strains f Escherichia coli, but not resistant or dependent vari-nts, possessed an oxidative reaction that is inhibited by reptomycin; he concluded that strains capable of grow-g in the presence of streptomycin have eliminated the action inhibited by the drug. Recently, English and IcCoy[4] have compared the growth of the sensitive arent and a number of resistant mutants of Micrococcus yogenes var. aureus in nutrient broth and in a semisyn-hetic medium. They found that, while sensitive and resistant mutants grew equally well in nutrient broth, the esistant mutants showed a much greater growth than the ensitive parent in the semisynthetic medium. When arious complex nitrogenous supplements were added to his medium, the growth of the parent organism was timulated to a level comparable to that of the resistant nutant. Further study showed biotin to be the stimu-atory factor in these supplements. The addition of biotin lso stimulated the growth of the resistant mutants, indi-ating that, although these organisms are apparently apable of adequate biotin synthesis, they grow more apidly when biotin is added to the medium than when hey have to synthesize biotin and subsequently utilize it. The ability of the streptomycin-resistant organism to ynthesize biotin was indicated by the fact that the growth f streptomycin-sensitive cultures was stimulated by the ddition of hydrolyzed cultures of resistant mutants. Further studies indicated that a reciprocal relationship xisted between ability for excellent growth in the semi-ynthetic mediums and streptomycin-resistance. Cultures of the streptomycin-sensitive parent were grown on semi-synthetic mediums. Out of 121 such cultures, one was found to possess a much heavier growth; this culture was found to be highly resistant to streptomycin. English and McCoy conclude that this finding not only indicates a mutual relationship between growth characteristics and streptomycin resistance but also provides evidence in support of the mutational origin of resistance, since resistance was gained in the absence of streptomycin or any related compound.

MEDICAL CARE EXPENDITURES

Americans are getting more and better medical care for the same proportion of their budget. This conclusion is reached in an analysis of personal consumer expenditures for medical care and for other items in the consumer's budget presented by the Bureau of Medical Economic Research on page 1354 of this issue.[1] The proportion of the consumer's budget spent for medical care in the last 20 years has hovered around 4%. Over the 20-year period the physicians' average share of the "medical care dollar" fell 12%, from 31.8 cents to 28.1 cents; the hospitals' share rose 66%, from 13.9 cents to 23.1 cents. Since the commonly used base period, 1935-1939, the physicians' share of the medical care dollar fell 10% while the hospitals' share rose 37%.

Medical care prices have lagged considerably behind all prices as measured by the Consumers' Price Index since 1935-1939. Average weekly earnings in manufacturing have increased so much more rapidly than medical care prices that a production worker today can buy almost twice as much medical care with one week's wages as he could with one week's wages in 1935-1939.

The data on prices and personal consumer expenditures for medical care clearly indicate a phenomenal increase in "output per physician" and in per capita consumption of medical care since the base period. Over and above this favorable behavior of medical care prices and costs to the consumer is the great improvement in the quality of medical care which the changes in quantity and prices can never reflect.

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5. Clancy, C. F.: The Sensitivity of Freshly Isolated Bacteria to Neomycin, J. Bact. 61: 715, 1951.

6. (*a*) Jackson, G. G.; Gocke, T. M.; Wilcox, C., and Finland, M.: In Vitro Susceptibility of Pneumococci to 7 Antibiotics (Penicillin, Streptomycin, Bacitracin, Polymixin, Aerosporin, Aureomycin and Chloromycetin), Am. J. Clin. Path. 20: 218, 1950. (*b*) Gocke, T. M.; Wilcox, C., and Finland, M.: Antibiotic Spectrum of the Gonococcus, Am. J. Syph. 34: 265, 1950. (*c*) Finland, M.; Wilcox, C., and Frank, P. F.: In Vitro Sensitivity of Human Pathogenic Strains of Streptococci to 7 Antibiotics (Penicillin, Streptomycin, Bacitracin, Polymixin, Aerosporin, Aureomycin and Chloromycetin), Am. J. Clin. Path. 20: 208, 1950.

7. Finland, M.; Frank, P. F., and Wilcox, C.: In Vitro Susceptibility of Pathogenic Staphylococci to 7 Antibiotics (Penicillin, Streptomycin, Bacitracin, Polymixin, Aerosporin, Aureomycin, and Chloromycetin), Am. J. Clin. Path. 20: 325, 1950. Finland, Wilcox and Frank.[6c]

1. Geiger, W. B.: Interference by Streptomycin with a Metabolic System of Escherichia Coli, Arch. Biochem. 15: 277 (Nov.) 1947. Henry, J.; Henry, R. J.; Housewright, R. D., and Berkman, S.: Studies on Streptomycin: III. Effect of Streptomycin on the Metabolism of Resting Bacteria and on Certain Purified Enzymes, J. Bact. 56: 527 (Nov.) 1948. Oginsky, E. L.; Smith, P. H., and Umbreit, W. W.: Action of Streptomycin: I. Nature of the Reaction Inhibited, J. Bact. 58: 747 (Dec.) 1949.

2. Seligmann, E., and Wassermann, M.: Induced Resistance to Streptomycin, J. Immun. 57: 351 (Dec.) 1947.

3. Umbreit, W. W.: Metabolic Action of Streptomycin, Ann. New York Acad. Sc. 53: 6 (Aug.) 1950.

4. English, A. R., and McCoy, E.: Growth Comparisons of Streptomycin-Sensitive and Streptomycin-Resistant Micrococcus Pyogenes Var. Aureus, J. Bact. 62: 19 (July) 1951.

1. This article, with two additional charts and six additional tables, has been preprinted as Bulletin 87 of the Bureau of Medical Economic Research. A copy will be sent on request to the Bureau, 535 North Dearborn St., Chicago 10.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Earlier this week it was announced that physicians attending the A. M. A. Clinical Session in Los Angeles will be privileged to hear a discussion of major national issues by two eminent United States Senators—Republican Robert A. Taft of Ohio and Democrat Harry F. Byrd of Virginia. They will address a special meeting of the Association's House of Delegates at 7 p. m., Pacific Time, on Wednesday, December 5. The meeting is to be held in the Shrine Auditorium, so that more than 6,000 additional physicians and members of the general public can be accommodated. The speeches will also be broadcast over the American Broadcasting Company network, reaching a vast audience of Americans in their homes from coast to coast. The program will go on the air, over all major ABC stations, at 10 p. m. in the Eastern Time Zone and at 9 p. m. in all other areas.

It is altogether fitting that the American Medical Association should provide a platform for these two distinguished Senators. It is fitting because the A. M. A. is a nonpartisan, professional organization made up of about an equal number of Republicans and Democrats. Those of us who make up this professional cross section of America have been waging a vigorous battle against the socialization of medicine. It has been fought on a strictly nonpartisan basis. We took our stand on the principle of individual freedom, and we welcomed the support of all who would fight with us against the choking disease of socialism, regardless of their party affiliation. Both Republicans and Democrats have given us strong support.

The invitation to Senators Taft and Byrd to address the American Medical Association House of Delegates is fitting for another reason. It is tangible evidence of the reawakened, militant citizenship of thousands of physicians who today are taking an increasingly active part in politics at all levels of government.

Medicine is a demanding profession. It is also fascinating. Because of this, it is all too easy to become completely absorbed in practice. In the past, many of us have concentrated so hard on medicine that we have ignored our country's claim to some of our time and talent. We have said, in effect, "Let others who are less busy shoulder the responsibility of government."

We failed to realize that if we did not take up the tools of citizenship ourselves, others would be only too happy to wield them for us and would use them to build a wall around our profession and around the people who are our patients. This wall would be built in the name of security—security against all types of problems that can attack a man in his lifetime. The trouble with such walls is that they more often turn out to be the barricades of a prison than the ramparts of a fortress. Fortunately, we realized what was happening before the socialistic wall was completed. We have time, though not much, to take up our neglected tools of citizenship and to help rebuild our government around the basic framework of the Constitution. Another year, however, may be all the time we have. It will require the dedicated efforts of every physician if we are to succeed in preserving the American way of life.

What can we, as physician-citizens, do in the comin We must look first to our particular responsibility—the of the people. Now, more than ever, we must bend our to provide the finest possible medical care. Our profession tolerate the slip-shod doctor or the fee gouger. They mu fearlessly disciplined. It matters not that others are out to "all that the traffic will bear" or are avidly seeking "som for nothing." We who have chosen medicine as a life's have dedicated ourselves to the noblest of goals—the wel of our fellow man. By living up to this goal, we can provi shining example of free men working skillfully and honestly gether to improve conditions of life and doing so wit coercion and without regimentation.

Next year—election year—is a time of decision for the Am can people. Can the corrupt, power-seeking socialist plan be turned out of office they now hold? If not, our country expect to travel still further down the road to state contr the ensuing years. For medicine this m socialization, and socialization means terioration of those high standards of which we have built so painstakingly. A us want to practice good medicine, but will you and I be able to do so if we see patients at three-minute intervals in to make enough money to support families? How will we be able to pr good medicine if the government tells cut down on drugs? If we allow this dar of socialization to come, even our na association will be relatively powerle help. For proof, consider the ineff struggles of our British colleagues wi dictatorial Minister of Health.

We cannot afford to say, "It won't h here." Oscar Ewing and his supporters Committee for the Nation's Health the Physician's Forum are as busy as ever. Witness his r proposal for "free" hospitalization for all those over 65. Wi the gift of $10,000 that Senator Murray presented to the mittee for the Nation's Health last month after he had rec it from the CIO. Perhaps the most far-reaching attack letter from President William A. Green to every AFL me extolling the work of the Committee for the Nation's Healt urging them to contribute funds for its support.

The calculated attack on the medical profession is bu phase of a campaign to convert our government to soci It is a quest for power only thinly glossed over with goo tentions. Certainly the American people have had ample o tunity to observe the corrupting effects of such power in months. They are sick of mink coats and freezers.

Next year brings an opportunity—perhaps the last— rid of the socializers, no matter which party label they us camouflage. Thousands of independent American citizen grimly determined that it will be done. Leading this mar the polls is an ever-growing number of physicians who answered the call for courageous citizenship. Stand with u freedom, integrity in government, for the brave future of cine and of our country.

John W. Cline, M.D., San Francis

ORGANIZATION SECTION

RVEY OF OPINIONS OF MEDICAL ARE IN MACON COUNTY

A survey was conducted by the Macon County Medical So- ty[1] to determine medical care opinions and needs among the ,853 residents of Decatur, Ill., and surrounding towns and rms of Macon County. Three hundred residents, a cross sec- n sample, were interviewed during August and September.

Percentages of approval of medical and surgical care and ctors, by those who expressed an opinion, ranged from 91% 71%. Personal interest of the doctor in his patient received e highest approval, while surgical fees received the lowest.

Drug bills and hospital bills received the greatest criticism nong the 30 questions in the survey. Forty-four per cent of ose expressing an opinion said that drug bills were too high, d 43% said that hospital bills were too high.

The survey showed also that 91% of the families questioned Decatur and Macon County said they have a family doctor. ghty-eight per cent of the families expressing an opinion said ey were able to get a doctor to make a house call any time the day or night when they needed him, and another 4% said ey could get him sometimes.

Widely varying opinions on doctor, hospital, and drug bills re expressed. Eighty-eight per cent of those expressing an inion said that office call charges were about right; 87% said at home call charges were about right; 71% said that surgical es were about right; 56% said that hospital bills were about ght; 56% said that drug bills were about right.

Ninety-one per cent of those expressing an opinion said that e quality of medical care was either excellent or good; 89% id surgical care was excellent or good; 72% termed the quality f hospital care excellent or good. The quality of nursing care ceived similar percentages.

Eighty-one per cent of the families in the community have ome form of hospitalization insurance. Seven out of every 10 f these also had some insurance for surgical bills. Eighty-four er cent of those having health insurance were satisfied with e policies they had.

Ninety-three per cent said that the secretaries, nurses, and chnicians in doctors' offices were courteous, and many added e word "very." The waiting time in doctors' offices was not so cceptable. Only 77% said it was reasonable, and 22% com- lained that it was unreasonable.

Ninety-one per cent felt that their own doctor had a personal nterest in them. They were less sure that other doctors had a ersonal interest in their patients as individuals and as people.

Seventy-two per cent of those expressing an opinion thought hat Macon County doctors were very much interested in mak- ng their community a better place to live; another 22% said hat they were moderately interested.

Do Macon County citizens like doctors as people? Ninety- our per cent of those expressing an opinion said they did, but 29% said that they would like to change them. Mentioned ftenest were that they would like doctors less egotistical and ndependent, less vague and more frank in explaining what was wrong, less hurried in their examination and treatment, less erious and less cold, and with more community interest. Some who said that they did not like doctors as people still did not want to change them.

Eighty-nine per cent of those who expressed an opinion felt avorably about the Macon County Medical Society as an organization. Eighty-two per cent thought well of the American Medical Association. More than half the residents of Macon County either had not heard of the Macon County Medical Society or did not know enough about it to express an opinion, and slightly less than half did not express an opinion about the American Medical Association for the same reasons.

There was no striking difference in percentages for the low income group compared with the middle and high income group in their answers to the different survey questions. This was also true for the group over 40 years of age compared with the group under 40.

One out of every 330 persons in Decatur and Macon County was interviewed personally on the 30 basic questions about medical and health care. The sample was selected on a representative cross section and on the basis of the "law of averages," so that the expressed opinions would reflect the attitudes of the citizens of the whole county. Included in the 300 interviews were 116 community leaders, 139 Decatur households, 26 country town households, 7 farm homes, and 12 office workers.

The community leaders included executives of newspapers, radio stations, industrial plants, and small businesses, city and county government officials, and officers and executives of 56 community organizations, including labor, civic, fraternal, professional, veterans, women's, school, youth, welfare, health, church, and farm groups. Every type of trade, craft, and job was represented in the households sample—homemakers, machinists, carpenters, truck drivers, clerks, packers, compressor operators, barbers, common laborers, beauty operators, farm owners, farm tenants, and others. The interviews were divided proportionately: 146 males and 154 females; 151 over 40 years of age and 149 under; 151 with over $3,600 annual income per family and 149 under; 264 urban and 36 rural.

The Macon County Medical Society requested Lawrence W. Rember, Chicago, director of field service for the Public Relations Department, American Medical Association, to advise and assist in conducting the survey. Mrs. John R. Castle, 425 W. Macon, Decatur, local interviewer for the National Opinion Research Center associated with the University of Chicago, worked with Mr. Rember on the interviewing.

The questionnaire was designed to be objective and constructive. It was carefully checked with the American Medical Association's Bureau of Medical Economic Research and two national firms known for doing scientific opinion research, to make sure that it carried out these principles.

The request by the Macon County Medical Society for a representative of the American Medical Association to assist in conducting the survey was approved by the national organization because the Decatur and Macon County area was a most representative county society area—in population, industrially, and rurally—and because this area had been chosen in several national studies as a United States test-tube county. The results of the survey will be presented at a national conference sponsored by the American Medical Association in Los Angeles on December, 2, under the title "An Urban-Rural Opinion Test Tube."

The study will be offered as a pattern next year for county medical societies across the nation in strengthening their public relations and improving their medical services. This is the only study of its kind in the United States that the American Medical Association will assist with staff help at the survey site.

The survey proved definitely that people like to talk about their medical experiences. Community reaction to the survey was typified by such comments as "The Questionnaire is very well constructed." "This is the way to find out where they stand and *where public prejudices and gripes are*." "*I think this is* a smart idea; I am glad to see them doing this." "This is a very progressive step." Results of the survey will be used by the Macon County Medical Society in shaping [illegible] mber of constructive new services which it has recentl [illegible] ill announce in the near future. These pu [illegible] a

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A more detailed report of this survey will be presented at the Public Relations Conference at the Biltmore Hotel, Los Angeles, December 2. Additional information can be obtained from the Public Relations Department, American Medical Association, 535 N. Dearborn St., Chicago 10.

[1] Members of the Public Relations Committee of the Macon County Medical Society are Drs. C. Elliott Bell, Chairman; John E. Madden; R. Zink Sanders; William Requarth; Vernon Long; and Forrest Martin.

grievance committee to listen to complaints and questions about medical care and fees and to act on them, an emergency call system to help patients obtain a doctor at any time that one is needed, and a health insurance campaign to increase knowledge of, and enrolment in, health insurance plans.

THE AREA SURVEYED

Macon County and Decatur are in central Illinois, 40 miles from Springfield, the State Capital. The county covers 577 square miles. The 1950 census shows the population of Macon County as 98,853, with 66,269 people living in Decatur city limits. According to the 1940 census, 96.4% of the population are native born; of these, 93.4% are native born white and 3.5% are nonwhite. The number of persons per family is 3.2.

The manufacturing payroll, according to the 1947 census, totaled $29,500,000; the total farm income, according to the 1948 census, totaled $23,500,000. Retail establishments, wholesale establishments, and selected service trade, according to the same census, totaled sales receipts of $273,901,000. Decatur is the "soy bean capital of the world," with five large processing plants. Corn products, livestock, poultry, dairy products, and other agricultural products are also processed in sizable volume. Decatur is also an agricultural trade center.

Manufacturing products flow out of 159 firms. Metals in the form of automobile parts, steel finished work, locomotives and cars, castings, plumbing and heating equipment, and many other heavy and light industrial and consumer products carry the stamp "Made in Decatur." Wood, textiles, and plastics are fashioned into numerous products. Drugs and chemicals, paper, and other products combine to make Decatur a city of diversified industry.

Decatur, the county seat, has a university, a 3% Negro population, a number of regional offices, and a surrounding farm acreage of 339,973 in the county. These factors, along with the agricultural and manufacturing factors, made Decatur and Macon County an ideal test-tube for surveying public opinion and attitudes.

Macon County has 104 practicing physicians and surgeons, and 101 of these are members of the Macon County Medical Society. Ninety-five doctors reside in Decatur and nine in surrounding country towns. Three general medical and surgical hospitals, privately owned, have a total of 560 beds, a tuberculosis hospital has 80 beds, and a city contagious hospital has 20 ds open and 20 beds closed.

Following, question by question, are the results of the survey:

AVAILABILITY OF MEDICAL CARE

1. *Do you have a family doctor?*

Yes	91%
No	9

Slightly more people in the middle and high income group had family doctors than in the low income group—92% against 89%.

2. *Have you seen your family doctor within the past year?*

Yes	89%
No	11

Nine per cent more people over 40 years of age than under 40 reported having seen their family doctor during the past twelve months—93% contrasted with 84%.

3. *Have you ever used a specialist?*

Yes	75%
No	25

The percentages were somewhat higher for the middle and high income group (80%) and the group over 40 years of age (78%) than for the low income group (69%) and the group under 40 years of age (72%).

4. *Was the specialist recommended by your family doctor?*

Yes	39%
No	36
	75%

5. *Are you able to get your doctor (or a doctor) when yo him, regardless of whether it is night, weekday, Sat or Sunday, or a holiday?*

Yes	80%
No	7
Sometimes	3
Don't know	10

Of those who did express an opinion, 88% said that doctor came any hour of the day or night; 4% said that he only sometimes; and 8% said that he would not come. T combined 10% who said they could not get a doctor to c to the house when they needed him or that they could doctor only "sometimes" is approximately the same as the centage who did not have a family doctor. Those who did know explained that an occasion for needing a doctor at home had not arisen.

6. *How soon does your doctor respond?*

Right away	54%
Short delay	25
Long delay	7
Don't know	14

Of those who did express an opinion, 63% said their responded right away; 29% said there was a short delay; 8% said there was a long delay.

COST OF MEDICAL AND SURGICAL CARE

7. *For services rendered, do you think you pay too much little, or about the right amount for home calls?*

Too much	10%
Too little	1
About right	77
Don't know	12

Of those who did express an opinion, 87% said that call charges were about right and 12% said that they we much.

8. *For services rendered, do you think you pay too muc little, or about the right amount for office calls?*

Too much	11%
Too little	0
About right	85
Don't know	4

Of those who did express an opinion, 88% said that call charges were about right and 12% said that they we much.

9. *For services rendered, do you think you pay too muc little, or about the right amount for surgery?*

Too much	16%
Too little	0
About right	40
Don't know	44

Of those who did express an opinion, 71% said that su fees were about right and 29% said they were too high. 44% of those surveyed who did not express an opinion cost of surgery, many explained that they had never had

COST OF HOSPITAL AND DRUG CARE

10. *For services rendered, do you think you pay too muc little, or about the right amount for hospital care?*

Too much	36%
Too little	1
About right	48
Don't know	15

Of those who did express an opinion, 56% considered hospital harges about right, while 43% termed them too high. One of very 14 persons volunteered the comment that he had never een hospitalized.

1. *For services rendered, do you think you pay too much, too little, or about the right amount for prescription drugs?*

Too much	33%
Too little	0
About right	44
Don't know	23

Of those who did express an opinion, 56% said that drug bills ere about right and 44% said they were too high.

QUALITY OF MEDICAL AND SURGICAL CARE

2. *What do you think of the quality of the medical care (that is, other than surgical care) that you are receiving in your community?*

Excellent	38%
Good	53
Fair	9
Poor	0

Ninety-one per cent of those interviewed said that medical care as either excellent or good. Over twice as many of the middle ıd high income group said that medical care was excellent did the low income group (51% to 24%). This was about true f the group over 40 years of age when contrasted with the roup under 40 (49% to 26%).

3. *What do you think of the quality of the surgical care that you are receiving in your community?*

Excellent	35%
Good	26
Fair	5
Poor	2
Don't know	32

Of those who did express an opinion, 89% said surgical care as excellent or good, 51% saying it was excellent, and 38% ying it was good. Many more of the middle and high income roup said that surgical care was excellent as did the low income roup (62% to 36%). This was not so marked in the group over 0 years of age when contrasted with the group under 40 (56% o 46%).

QUALITY OF HOSPITAL AND NURSING CARE

14. *What do you think of the quality of hospital care that you are receiving in your community?*

Excellent	19%
Good	44
Fair	17
Poor	7
Don't know	13

Of those who did express an opinion, 72% termed the quality ɔf hospital care excellent or good, 21% saying it was excellent ınd 51% saying it was good. Twenty per cent said fair; 8% said ɔoor.

15. *What do you think of the quality of the nursing care that you are receiving in your community?*

Excellent	19%
Good	45
Fair	18
Poor	4
Don't know	14

Of those who did express an opinion, 75% thought nursing are either excellent or good, 22% saying it was excellent and 3% saying it was good. Twenty-one per cent said fair; 4% aid poor.

OUT OF TOWN MEDICAL CARE EXPERIENCE

16. *Do you go out of town at all for medical care? If so, where, for what, and why?*

Yes	28%
No	71
No answer	1

More of the middle and high income group and the group over 40 years of age go out of town for medical care than those in the low income group and the group under 40 (34% to 21%).

Where: Seventeen cities in all were named by the 64 persons reporting that they had gone out of town at some time or other for medical care. Chicago led the list with 18 persons; St. Louis and Bloomington were next with 10 each, and Champaign followed with 7.

What: Sixty-four persons named 23 different ailments as the cause for seeking medical care outside Macon County. Eye problems were mentioned by 18 persons, diagnosis by 14, surgery by 6, and general illness by 5.

Why: Those expressing themselves on the "why" of their going out of town for medical care gave six basic reasons for their doing so. Nineteen said going elsewhere was recommended by their Macon County doctor; 15 said they knew the out-of-town doctor; 10 wanted a "double check." Those going out-of-town said they go usually to see specialists, or clinics, and then only occasionally.

EXPERIENCE IN THE DOCTOR'S OFFICE

17. *Are the employees in your doctor's office courteous, discourteous, or in between?*

Courteous	93%
Discourteous	1
In between	3
Don't know	3

18. *Are you taken care of in a reasonable time or an unreasonable time in your doctor's office?*

Reasonable	77%
Unreasonable	22
No answer	1

19. *Do you feel that your own doctor has a personal interest in you?*

Yes	91%
No	7
Don't know	2

The percentage who felt that their doctor had a personal interest in them was about the same as the percentage who had a family doctor.

20. *Do you feel that Decatur (or Macon County) doctors in general are interested, moderately interested, or not interested in their patients as individuals and as people?*

Interested	59%
Moderately interested	26
Not interested	6
Don't know	9

Of those who did express an opinion, 94% felt that doctors practicing in Macon County were interested or moderately interested in their patients as individuals and as people. Of these 65% said interested and 29% said moderately interested. Five per cent more of the middle and high income group said interested or moderately interested, than did the low income group.

PREPAYMENT EXPERIENCE

21. *Do you have voluntary prepaid health insurance?*

Yes	81%
No	19

This health bill protection consisted of nonprofit, commercial group and individual policies for hospitalization and surgical and medical care, health and accident policies, and veterans and church policies.

Kind of hospitalization coverage: Of the 300 interviewed, 242 families had some form of hospital insurance, with 192 having one policy each, 47 having two policies, and 3 having three policies.

Kind of surgical and medical coverage: Of the 242 families who had hospital insurance, 170 also had surgical bill insurance and 147 had medical bill insurance. Surgical and medical bills were usually covered when the patient was hospitalized, but not for office or home care, except for accidents.

22. *If you are not covered by voluntary prepaid health insurance, do you know about such plans?*

Yes	18%
No	1
	19%

Of those who did not have health insurance, 96% said that they knew about its existence, and 4% said that they did not know about it.

23. *Are you satisfied or dissatisfied with the prepaid health insurance that you have?*

Satisfied	64%
Dissatisfied	12
Don't know	5
	81%

Of those who did have health insurance, 84% said that they were satisfied with it, and 16% said that they were not.

DOCTORS AS CITIZENS AND AS PEOPLE

24. *Do you think Decatur (or Macon County) doctors are very interested, moderately interested, or not interested in making their community a better place to live?*

Very interested	58%
Moderately interested	18
Not interested	5
Don't know	19

Of those who did express an opinion, 72% believed their doctors are very interested in making their community a better place to live. Twenty-two per cent said they were moderately interested; 6% said they were not interested.

25. *Do you like doctors as people?*

Yes	91%
No	6
Don't know	3

Of those who did express an opinion, 94% said that they liked doctors as people.

26. *Would you like to change doctors as people?*

Yes	27%
No	67
Don't know	6

Although on the previous question, more than 90% of the families liked doctors as people, only 71% of those who did express an opinion said that they would not like to change them. Some who said that they did not like doctors still did not want to change them.

How would you like to change doctors? Of 78 sugg made on how to change doctors as people, 24 said that do were too egotistical and independent. Fifteen said doctors too vague and should be more frank in discussing what is with patients. Thirteen thought doctors were too serious a cold. Ten said doctors rush the patient too much.

ATTITUDES TOWARD THE MACON COUNTY MEDICAL SO

27. *What is your opinion of the Macon County Medical So Is It favorable, unfavorable, or don't you have an o about it?*

Favorable	40%
Mixed	1
Unfavorable	4
Don't know	55

Of those who did express an opinion, 89% said that t thought favorably of it, 8% said unfavorably, and 3% ha mixed attitude. Over half of the persons interviewed said t they had not heard of the Society or that they did not kn enough about it to express an opinion.

28. *Are you familiar with any of the public services, or munity activities, of the Macon County Medical Soci*

Yes	35%
No	64
No answer	1

Over twice as many families in the middle and high group reported knowing about the Society's community a ities and public services than in the low income group (to 22%). This was true to a much lesser degree in the group 40 years of age when contrasted to the group under 40 (39 32%).

Services named: Only 106 persons out of the total sampl 300 interviewed said that they were familiar with any p services and community activities of the Macon County M Society. Seventy-eight persons mentioned the clinics; 10 school health programs; 9 named aid to cancer patients; 8 ferred to the free service doctors give; 7 mentioned free tions for children. Forty-nine other services were named times or less.

ATTITUDES TOWARD THE AMERICAN MEDICAL ASSOCIATIO

29. *Have you ever heard of the American Medical Associat*

Yes	82%
No	18

The percentage of "yes" answers among the middle and income group was substantially larger than in the low group (95% to 69%). The difference was almost as ma among the group over 40 years of age when contrasted with group under 40 (91% to 73%).

30. *Do you think favorably or unfavorably of the A. M. A.?*

Favorably	42%
Neutral	2
Unfavorably	8
Don't know	48

Of those who did express an opinion, 82% said they thou favorably of the A. M. A.; 15% said they thought unfavorab Over twice as many persons in the low income group did express an opinion about the A. M. A. (either because they not know about it, or did not know enough about it) than th in the middle and high income groups (70% to 31%). The trast was not quite so marked between the group under 40 ye of age and the group over 40 (63% to 38%).

The results of the survey reflect objectively the opinions a attitudes of the people of Macon County on the 30 basic qu tions asked. Other counties would do well to find out if medical care climate in their own area is as favorable. It ta some kind of investigation in each area to bring out the fa

ABSTRACT OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD IN ASSOCIATION HEADQUARTERS, OCT. 19-20, 1951

A two-day session of the Board of Trustees of the American Medical Association was held in the headquarters building October 19-20. Several matters were considered and the following actions were taken:

APPOINTMENTS

The following appointments were made to various committees, editorial boards, and special functions:

Dr. E. S. Hamilton to attend on November 10 the Medical Civil Defense Conference, sponsored by the American Medical Association, the American Hospital Association, and the Association of State and Territorial Health Officers. Dr. L. H. Bauer was selected previously to appear on the program on the first day of the Conference.

Dr. Jesse D. Hamer to the inauguration of Richard Anderson Harvill as president of the University of Arizona, Nov. 16, 1951.

Dr. Otto O. Beck to the inauguration of Harlan Henthorne Hatcher as the eighth president of the University of Michigan, Nov. 27, 1951.

Dr. Hugh R. Butt, Dr. Bruce K. Wiseman, and Dr. Louis Leiter as additional members of the editorial board of the *Archives of Internal Medicine*, for terms of 3 years, 2 years, and 1 year, respectively, each term to begin Jan. 1, 1952.

Dr. J. Lafe Ludwig of Los Angeles to replace Dr. D. H. Murray (who resigned because of the pressure of other duties) on the Committee on Legislation of the American Medical Association, and Dr. W. B. Martin, as an additional member on that Committee.

Dr. James R. Reuling as a representative of the Association on a committee to resolve difficulties concerned with the Armed Forces Blood Donor Program. The American National Red Cross and the Department of Defense also will be represented on this committee.

Dr. Julian P. Price to succeed himself on the Advisory Committee to the State Journal Advertising Bureau for a term of five years.

Mr. C. Joseph Stetler, Secretary of the Council on National Emergency Medical Service, as ex officio member of the Association on the Civil Defense Committee of the Association of State and Territorial Health Officers.

Fred V. Hein, Ph.D., to become one of the authors of the second Yearbook on Health, Physical Education and Recreation, to be published by the Association for Health, Physical Education and Recreation.

COMMITTEE ON RURAL HEALTH

The Board authorized reorganization of the Committee on Rural Health as a Council of the Board of Trustees.

1954 CLINICAL SESSION

November 30-December 3 were selected as the dates for the Clinical Session of the Association to be held in Miami, Fla., in 1954.

NATIONAL COMMITTEE FOR TRAFFIC SAFETY

Continued cooperation with the National Committee for Traffic Safety during the coming year was authorized by the Board of Trustees.

WORLD MEDICAL ASSOCIATION

The Board voted that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION be sent to all members of the Council of the World Medical Association.

RADIO PROGRAM

A new interview program, entitled "Here's the Doctor," directed toward the housewife and conducted by a physician, was authorized by the Board of Trustees.

COMMITTEE ON CAREERS IN NURSING

To assist in the national student nurse recruitment program for 1952, the Board made an appropriation for the work of the Committee on Careers in Nursing.

INCOME TAX EXEMPTION FOR POSTGRADUATE COURSES

In compliance with previous instructions from the Board, procedures have been initiated within the Bureau of Internal Revenue for a review of the 1921 ruling which denies deductions to physicians for expenses incurred in taking postgraduate courses.

DRUG ADDICTION

The Board authorized the appointment of a committee to study the problems of drug addiction. An announcement will be made at a later date with respect to the composition of the committee.

THE SCIENTIFIC EXHIBIT, CHICAGO SESSION

June 9-13, 1952

Representatives to the Scientific Exhibit have been elected by the various Sections of the Scientific Assembly as follows:

Section on Anesthesiology, Dr. Scott M. Smith, 325 Eighth Ave., Salt Lake City.

Section on Dermatology and Syphilology, Dr. James R. Webster, 122 S. Michigan Ave., Chicago 3.

Section on Diseases of the Chest, Dr. Edwin R. Levine, 109 N. Wabash Ave., Chicago 2.

Section on Experimental Medicine and Therapeutics, Dr. Robert W. Wilkins, Evans Memorial Hospital, 65 E. Newton St., Boston.

Section on Gastro-Enterology and Proctology, Dr. J. P. Nesselrod, 636 Church St., Evanston, Ill., and Dr. Everett D. Kiefer, The Lahey Clinic, 605 Commonwealth Ave., Boston 15.

Section on General Practice, Dr. Charles E. McArthur, 205 E. Seventh Ave., Olympia, Wash.

Section on Internal Medicine, Dr. Wesley W. Spink, University Hospital, Minneapolis 14.

Section on Laryngology, Otology and Rhinology, Dr. Francis W. Davison, Geisinger Memorial Hospital, Danville, Pa.

Section on Military Medicine, Col. William S. Stone (MC) USA, Army Medical Center, Washington, D. C.

Section on Nervous and Mental Diseases, Dr. Leon J. Whitsell, 909 Hyde St., San Francisco 9.

Section on Obstetrics and Gynecology, Dr. Frederick H. Falls, University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12.

Section on Ophthalmology, Exhibit Committee, Dr. Georgiana D. Theobald, 715 Lake St., Oak Park, Ill., Chairman; Dr. Donald J. Lyle, 601 Union Trust Bldg., Cincinnati 2; and Dr. Phillips Thygeson, 87 N. Sixth St., San Jose, Calif.

Section on Orthopedic Surgery, Dr. J. Vernon Luck, 1930 Wilshire Blvd., Los Angeles 5.

Section on Pathology and Physiology, Dr. Frank B. Queen, 4181 S. W. Sam Jackson Park, Portland, Ore.

Section on Pediatrics, Dr. F. Thomas Mitchell, 376 S. Bellevue Blvd., Memphis 4, Tenn.

Section on Physical Medicine and Rehabilitation, Dr. Arthur L. Watkins, Massachusetts General Hospital, Boston 14.

Section on Preventive and Industrial Medicine and Public Health, Dr. Paul A. Davis, 1436 Delia Ave., Akron 2, Ohio.

Section on Radiology, Dr. Richard H. Chamberlain, 3400 Sprue St., Philadelphia 4.

Section on Surgery, General and Abdominal, Dr. Walter G. Maddock, 250 E. Superior St., Chicago.

Section on Urology, Exhibit Committee, Dr. Roger W. Barnes, 1216 Wilshire Blvd., Los Angeles, Chairman; Dr. Rubin H. Flocks, University Hospitals, Iowa City; and Dr. George H. Ewell, 16 S. Henry St., Madison 3, Wis.

Applications for space close on Jan. 15, 1952, but should be submitted as far in advance of that date as possible. Application blanks may be obtained from the Section Representatives or from the Director, Scientific Exhibit, American Medical Association, 535 N. Dearborn St., Chicago 10.

MEDICAL NEWS

CALIFORNIA

Annual Sectional Pathologists Meeting.—The California Society of Pathologists and the Southwestern Section of the College of American Pathologists are holding an annual midwinter meeting December 1-2 at the Ambassador Hotel in Los Angeles. The first day will be dedicated to Dr. Ernest M. Hall, retiring professor of pathology of the University of Southern California School of Medicine. The majority of the scientific contributions of the day are being offered by former students and associates of Dr. Hall. Guest speakers include Dr. Stanley P. Reimann, professor of oncology at Hahneman Medical College and Hospital and director of the Institute for Cancer Research, Philadelphia; Dr. Sidney C. Madden, professor of pathology at the University of California at Los Angeles School of Medicine, and Dr. Riojum Kinosita, visiting professor of pathology, University of California at Los Angeles School of Medicine, and professor of pathology, Osaka Imperial University. At the Tumor Slide Conference on December 2 several tumors of soft parts will be discussed. The moderator of the discussion will be Dr. John W. Budd.

FLORIDA

Seminar in Ophthalmology and Otolaryngology.—The sixth annual midwinter seminar of the University of Florida will be held January 14-19 in Miami Beach. Lectures on ophthalmology will be presented January 14-16, and on otolaryngology on January 17-19. Lecturers for the courses in ophthalmology include Drs. Alson E. Braley, Iowa City; John M. McLean, New York; Wendell L. Hughes, Hempstead, Long Island, N. Y.; Irving H. Leopold, Philadelphia, and F. Bruce Fralick, Ann Arbor, Mich. Otolaryngologists who will lecture include Drs. Fred W. Dixon, Cleveland; Thomas C. Galloway, Evanston, Ill.; Anderson C. Hilding, Duluth, Minn.; Moses H. Lurie, Boston, and Henry L. Williams, Rochester, Minn. On January 16, registrants are invited to attend the midwinter convention of the Florida Society of Ophthalmology and Otolaryngology, which meets urrently with the seminar. All meetings will be held at the [illegible] Souci Hotel. Dr. Walter T. Hotchkiss, Miami Beach, is y, and communications concerning the seminar should [illegible] addressed to him.

ILLINOIS

Society News.—At a recent meeting of the Illinois Section of the American College Health Association, Dr. Otto J. Keller, director of student health service at Northern Illinois State Teachers College in DeKalb, was elected president. Other officers include Dr. Homer L. Lawder, University of Illinois, Champaign, vice-president, and Dr. T. William Lester Jr., University of Chicago, secretary-treasurer.

Chicago

Appointments to Armour Laboratories.—Dr. George F. Kamen, New York, has been appointed an assistant medical director in the clinical investigation service of Armour Laboratories medical department. He has been an assistant medical examiner in the department of forensic medicine of New York University. Dr. Robert J. Feldmann has been named an assistant medical director in the consultant service of the medical department. Before joining the laboratories, he assisted on a research project to study the effects of adrenalectomy on schizophrenia at the University of Chicago.

Prize for Paper on Industrial Medicine.—The Chicago Society of Industrial Medicine and Surgery awards an annual prize of $150 for a meritorious scientific paper in the field of industrial medicine and surgery. Any physician in the Chicago area who has received his M.D. degree within the six years immediately prior to the date closing the contest March 1 for the current year is eligible. The paper must concern unpresented original laboratory or clinical ideas or research data. The manuscript with two carbon copies submitted for the contest should not be signed by the author but should be identified by a detached letter and mailed to the secretary of the society, Dr. Charles Drueck, 28 E. Jackson Blvd., R. 1300, Chicago 4. The paper and award will be presented at the annual meeting of the society.

MICHIGAN

Another Center for Research on Poliomyelitis.—A research center for extensive clinical research on poliomyelitis is to be opened at the University of Michigan Hospital, Ann Arbor, under the joint sponsorship of the university and the National Foundation for Infantile Paralysis. Dr. James L. Wilson, chairman, department of pediatrics and communicable diseases, will have over-all supervision of the center, and Dr. David G. Dickinson will be director. Similar centers were opened last year at Children's Hospital of Boston, Wellesley Hills, Mass., and at Jefferson Davis Hospital, Houston, Texas.

NEW JERSEY

Radioisotope Laboratory.—A radioisotope laboratory has been installed at the Research Laboratories of E. R. Squibb & Sons, New Brunswick. The new unit will be headed by Paul Numerof, a chemist who worked on the atomic bomb project at Los Alamos during World War II. The isotope laboratory will function primarily as a service unit for other research departments, using isotopes and tracers extensively to help determine the action of new drugs.

NEW YORK

Personal.—Dr. Vincent Hernandez, Rear Admiral, M. C., U. S. N., retired, has been appointed associate medical director for the overseas company of E. R. Squibb & Sons. He has had more than 30 years' service in the medical department of the United States Navy.

Dr. Godfrey Given Sedgwick Medal.—The American Public Health Association awarded Dr. Edward S. Godfrey Jr., formerly commissioner of the New York State Health Department, the Sedgwick Memorial Medal for 1951 in recognition of his contributions to the evolution and development of public health practice and his interpretation of the principles of epidemiology. The medal was presented at the annual banquet in San Francisco November 1. Dr. Godfrey, who retired as commissioner of health in 1947, also served as adjunct professor of preventive medicine and public health at the Albany Medical College and as professor of clinical epidemiology at Columbia University College of Physicians and Surgeons, New York.

Hospital Alumni Scientific Conference.—The annual Alumni Scientific Conference of the Hospital for Joint Diseases, New York, is being held December 13-15. On December 13 Dr. W. Russell MacAusland, Boston, will review patients who had the Judet operation at the hospital; in the evening he will deliver the Walter M. Brickner Lecture on the uses of the Judet prosthesis in disabilities and deformities of the hip joint. On Friday morning a symposium on "epiphysiolysis," with Dr. Armin Klein of Boston presiding, will include a review by Dr. Melvin H. Jahss, New York, and Dr. Abel Kenin, Brooklyn, of 208 patients treated at the hospital with a 25-year follow-up. During the afternoon the residents will present their theses, with an award by the alumni association for the best. On Saturday morning Dr. Henry L. Jaffe will conduct a panel on bone tumors, and the afternoon session will deal with advances in orthopedic surgery. A dinner-dance will be held on December 15 in the Grand Ballroom of the Hotel Biltmore, at which time the issue of the hospital's scientific bulletin, honoring Dr. Henry L. Jaffe for his 25 years of service as pathologist and director of laboratories, will be presented to him by Dr. Samuel Kleinberg, New York, editor.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

New York City

Lectures in Psychosomatic Medicine.—Mount Sinai Hospital is sponsoring a series of eight lectures on recent advances in psychosomatic medicine to be given at 8:30 p. m. in Blumenthal Auditorium each month. Lectures are as follows:

Dec. 19, Psychosomatic Aspects of Obesity, Brunhilde Bruch, New York.
Jan. 9, The Essence of Psychotherapy, Maurice Levine, Cincinnati.
Feb. 6, Psychophysiological Studies of Fistulous Openings into the Gastrointestinal Tract, Sydney Margolin, New York.
Feb. 22, Experimental Psychiatry, Jules H. Masserman, Chicago.
Feb. 27, Emotional Factors in the Etiology and Treatment of Hyperthyroidism, Theodore Lidz, Baltimore.
March 19, Summary of Experimental Evidence Relating Life Stress to Diabetes Mellitus, Lawrence E. Hinkle Jr., New York.
March 26, Emotional Problems of Hypertension, Edward Weiss, Philadelphia.
April 2, An Integration of the Psychosomatic Viewpoint in Medicine, M. Ralph Kaufman, New York.

Appoint Director of Hospital for Speech Disorders.—Dr. David Ross, formerly head of the Seton Institute of Baltimore, has been named medical director of the National Hospital for Speech Disorders, succeeding the late Dr. James S. Greene, who founded the hospital in 1916 and served as its head until his death in 1950. Dr. Ross received training in psychiatry at Maudsley Hospital, London, Cassel Hospital, Penshurst, Kent, and the Aberdeen (Scotland) Royal Mental Hospital. During World War II he served in the Royal Navy as a specialist in neuropsychiatry. At the National Hospital for Speech Disorders more than 78,000 persons with speech disorders have been treated, about 63% of them without charge, in its more than a third of a century of service. The staff includes over 40 physicians, psychologists, speech and voice clinicians, and other therapists, and clinical, administrative, and clerical assistants.

NORTH CAROLINA

Speech and Hearing Problems Center.—A new program, aimed at creating a diagnostic and treatment center for speech and hearing problems in North Carolina, has been started at The Duke University Medical School in Durham. The program attempts to educate parents to help their children by explaining the treatment, step by step, to the parents. Three men who work as a team in treating these problems are Dr. Leslie B. Hohman, professor of neuropsychiatry; Murray Halfond, speech pathology clinician, and Dr. Kenneth L. Pickrell, professor of plastic surgery. Medical speech pathologists handle referrals from the Crippled Children Section of the State Board of Health and the Vocational Rehabilitation Service, as well as other hospital departments and private sources. The program is aimed at developing rapid treatment methods and at establishing a training center for speech correctionists.

PENNSYLVANIA

Historical Marker and Portrait Unveiled.—Memorial services conducted at English Center in Lycoming County for Dr. John Frederick Rheinwald were climaxed by the unveiling of a mountain stone marker. The memorial was sponsored by the Lycoming and Tioga counties' medical and historical societies. Dr. Rheinwald was killed in the winter of 1840 by a panther in that vicinity. The medicine kit he was carrying when killed was one of the relics displayed of olden days. Col. Henry W. Shoemaker, McElhattan; Dr. T. Kenneth Wood, Muncy, and Judge Charles G. Webb, Wellsboro, were the speakers.

A portrait of Samuel Gilson Dixon, LL.D., Sc.D., first commissioner of health of Pennsylvania, was unveiled Aug. 24 in Bryn Mawr. Through his interest in tuberculosis Dr. Dixon, who was commissioner of health from Jan. 6, 1905 to Feb. 26, 1918, established Mont Alto Sanatorium. The Bryn Mawr State Clinic accepted this portrait, together with a silver cup, which were gifts of Dr. Dixon's daughter, Mrs. John S. Sharpe, Haverford.

Philadelphia

Dr. Lucchesi to Be Medical Director of Medical Center.—Dr. Pascal F. Lucchesi, chief of the Bureau of Hospitals and medical director of the Philadelphia General Hospital, has been named executive vice-president and medical director of the Albert Einstein Medical Center, which is being organized through the consolidation and expansion of Mount Sinai Hospital, Jewish Hospital, and Northern Liberties Hospital. Dr. Lucchesi was appointed superintendent of the Philadelphia General Hospital in March, 1946. He received the Strittmater Award of the Philadelphia County Medical Society in 1947.

Committee on Geriatrics.—The Philadelphia County Medical Society has organized a committee on geriatrics with Dr. Joseph T. Freeman as chairman. Other members are Drs. Edward L. Bortz, Charles L. Brown, William Dunbar, Thomas M. Durant, Edmund L. Housel, Richard A. Kern, Pascal F. Lucchesi, Henry F. Page Jr., Sholom O. Waife, and Lauritz S. Ylvisaker.

New Student Program Adds Field Experience.—The University of Pennsylvania has instituted in its School of Medicine a comprehensive new program of teaching, training, and actual field experience for the benefit of medical students. Training the general practitioner for his job in public health service continues throughout the four years, and courses, lectures, observation tours, and field experience are now mandatory for all medical students at the university. The entire Philadelphia metropolitan area is the laboratory in which students work under the new plan. Dr. John P. Hubbard, George S. Pepper professor of public health and preventive medicine, is chairman of the department in which the new program is being carried out. A feature of the curriculum is an opportunity for first-year students to assume gradually increasing responsibility for the medical problems c
a family assigned to the student and followed by him in th
clinic, hospital, and home throughout his four years in medic
school. The doctor-to-be assumes the role of physician for th
family under close faculty supervision and learns many aspec
of medical practice which he does not see in the clinic and th
hospital wards. To date this part of the program has been offere
on an elective basis to a limited number of students; but i
popularity, both with students and faculty, indicates clearly th
it is becoming an increasingly important part of medical trainin
A further innovation is the requirement that all students take u
some type of medical work during the summer between the thir
and fourth years.

Pittsburgh

Mellon Lecture.—The 35th Mellon Lecture was given by Eliz
beth C. Crosby, Ph.D., professor of anatomy, University c
Michigan Medical School, Ann Arbor, at the Mellon Institut
Nov. 6 at 8:30 p. m. on "Central Nervous System Control c
Eye Movements." The Mellon Lectures are sponsored by th
Society for Biological Research of the School of Medicin
University of Pittsburgh.

TEXAS

Hospital News.—The new eight-story Methodist Hospital c
the Texas Medical Center in Houston was dedicated at publi
ceremonies November 10. Major gifts to the building fund c
the new hospital included one million dollars from Mr. and Mr
H. R. Cullen, $500,000 from the M. D. Anderson Foundatio
and $100,000 from the H. C. Wiess family. The new hospit
has many installations for saving time and energy.

Dr. Ewalt Goes to Massachusetts.—Dr. Jack R. Ewalt, dean c
the Postgraduate School of Medicine, Houston, has resigned t
become commissioner of mental health for Massachusetts. D
Ewalt, who was professor of neuropsychiatry of the Universit
of Texas Medical Branch and administrator of the Medic
Branch hospitals in Galveston before going to Houston, wi
also have a teaching appointment in psychiatry at Harvar
Medical School, Boston.

VIRGINIA

Analysis of Study of Multi-Test Clinic.—The first major analys
of the multi-test clinic as a community method of detectin
remediable diseases in apparently well people has been publishe
by the Health Information Foundation, 420 Lexington Ave
New York. The report, based on eight tests given to 40,00
persons in Richmond, indicates that one out of four had sign
of health defects or diseases and one out of eight had diseas
conditions not previously suspected. The Richmond multi-te
clinic examined persons in the area free of charge for signs c

certain chronic diseases, including tuberculosis, heart defects, syphilis, hypertension, anemia, diabetes, obesity, and visual impairments. The survey was conducted early in 1950 by the Richmond residents themselves, through local agencies. A total of 1,592 persons were interviewed by foundation researchers, and information was secured on an additional 1,506. The average cost of the tests per person was $1.62, which was paid by voluntary health agencies, the Richmond Health Department, and the United States Public Health Service. The multi-test clinic in Richmond was planned by the Health Division of the Richmond Area Community Council, in cooperation with the Public Health Service and City Health Department.

WISCONSIN

Postgraduate Course in Gastroenterology.—The University of Wisconsin Medical School, Madison, will present a course in gastroenterology December 11-13 under the direction of Dr. Karver L. Puestow, professor of clinical medicine. The sessions include clinics, lecture-type presentations, and a clinical-pathological conference. Advance registration is required. Due to space limitations, registration must be limited, and the first 30 physicians to request inclusion on the class list will be accepted. Formal registration will be held at 8:30 a. m. December 11 in Building T-14. The fee for the course is $10, payable at the time of registration.

GENERAL

Four Proctologic Societies to Meet.—The quadrangular meeting of the New England, New York, New Jersey, and Philadelphia Proctologic societies will be held December 8 at the Warwick Hotel in Philadelphia following a dinner at 7 p. m. The program is as follows:

Observations of Pilonidal Disease and War Time Experience, Richard A. Hopping, Newark, N. J.
Colostomy Care and Management, A. W. Martin Marino, Brooklyn.
Surgical Procedure for Complete Prolapse of the Rectum, E. Parker Hayden, Boston.

Cerebral Palsy.—Between 15,000 and 22,000 babies of the 3 million born each year in the United States have an incapacitating neurological handicap in the form of cerebral palsy alone, or in combination with a convulsive disorder or mental retardation, according to Dr. Charles F. McKhann, Cleveland, medical rector of the United Cerebral Palsy Associations. In the United s alone some 550,000 persons are known to have had bral palsy since birth. Additional thousands, including many ults, acquire this disorder as a result of injury or disease.

Study of Multiple Sclerosis in Denmark.—A research program to perfect a technique of evaluating the course of multiple sclerosis and experimental treatments used for it is underway in Copenhagen, Denmark, as a result of a grant made by the National Multiple Sclerosis Society, New York. The investigation will be conducted by Dr. Paul Thygesen of Denmark, who has conducted research in multiple sclerosis for many years. To accurately follow the course of multiple sclerosis, patients are being given complete neurological examinations about every three weeks.

Psychoanalytic Association Meeting.—The midwinter meeting of the American Psychoanalytic Association will be held December 6-9 at the Waldorf-Astoria Hotel, New York, under the presidency of Dr. Robert P. Knight, Stockbridge, Mass. In addition to presentation of papers, the following roundtable discussions will be held on December 8:

Problems of Symptom Formation, with Special Emphasis on Phobic Symptom Formation, George Gerö, Ph.D., New York, chairman.
Schizophrenia in Childhood, Mary O'Neill Hawkins, New York, chairman.
Psychotherapy in Medical and Surgical Hospitals, Bernard Bandler, Boston, chairman.
Danger and Leadership: A Problem of Group Psychology, Otto E. Sperling, Brooklyn, chairman.

Urology Award.—The American Urological Association offers an annual award of $1,000 (first prize of $500, second prize $300, and third prize $200) for essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists. The first prize essay will appear on the program of the meeting of the American Urological Association at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 23-26, 1952. For details write the secretary, Dr. Charles H. de T. Shivers, Boardwalk National Arcade Building, Atlantic City, N. J. Essays must be in his hands before Feb. 15, 1952.

Meeting of Medical Clinics.—The American Association of Medical Clinics will hold its annual session at the Hotel Mayfair, Los Angeles, December 3. The professional problems session will begin at 2 p. m. following the luncheon, at which Dr. John W. Cline, San Francisco, President of the American Medical Association, will be the speaker. Dr. Jean S. Felton, Oak Ridge (Tenn.) National Laboratory, will speak on "Industrial Medicine and the Group Clinic—A Mutually Advantageous Relationship." He will be followed by Dr. Russel V. Lee, Palo Alto, Calif., who will speak on "Research in Clinics by Outside Physicians." The meeting will close with a panel discussion on "Relations of Clinics to the Medical Profession and the Public," with Dr. Bernard A. Watson, Clifton Springs, N. Y., as moderator.

Fund to Preserve Old Yellow Fever Hut.—Near the town of Quemado in Cuba is an old wooden shack, the remaining one of two structures in which Dr. Walter Reed and his associates conducted experiments in 1900 leading to the conquest of yellow fever. Building No. 1, "the infected bedding building," where volunteers slept for 21 nights without contracting the fever, was rediscovered in 1940 by Dr. Philip S. Hench of the Mayo Clinic, Rochester, Minn., and two companions. Dr. Hench, who has made an avocation of the Walter Reed epic, has sought for 10 years to have something done about preserving the ancient building. From $50,000 to $100,000 is needed to preserve it. The Cuban government has designated it a national monument and allocated $50,000 for protecting the building, but nothing constructive has been done. Dr. Hench volunteered to stand the cost of temporarily fortifying the structure, but the offer was declined because the Cubans wished to do the work themselves.

Cerebral Palsy Organization Names Medical Director.—Dr. Charles F. McKhann, Cleveland, has been appointed to the newly-created position of acting medical director for United Cerebral Palsy Association. He will coordinate medical activities in the united attack on cerebral palsy in cooperation with the organization's two volunteer medical bodies. These are the Research Council, headed by Dr. Sidney Farber of Children's Medical Center and Harvard Medical School, Boston, and the Medical Advisory Committee, of which Dr. Winthrop M. Phelps, director of Children's Rehabilitation Institute, Cockeysville, Md., is chairman. Dr. McKhann is a consultant in pediatrics to the Surgeon General of the U. S. Army and president of the American Board of Pediatrics, Philadelphia. He is also president of the Medical and Chemical Associates Research Laboratories in Cleveland, which is seeking and testing drugs effective in cerebral palsy and convulsive disorders. He taught at Harvard Medical School and Harvard School of Public Health, at Peiping Union Medical College in China, and at the University of Michigan at Ann Arbor.

Graduate Fellowships in Radiological Physics.—The Oak Ridge Institute of Nuclear Studies is receiving applications for Atomic Energy Commission Graduate Fellowships in Radiological Physics for the 1952-1953 school year. They are for study at two training centers, one at the University of Rochester, N. Y., in cooperation with Brookhaven National Laboratory, and the other at Vanderbilt University, Nashville, Tenn., in cooperation with Oak Ridge National Laboratory. In both cases the final three months of the fellowship will be spent at the national laboratory. Appointments are made for one year for specialized training in radiological physics. The annual basic stipend is $1,500. An additional $500 is allowed for a wife and $250 for each of two dependent children. University tuition and fees will be paid by the Oak Ridge Institute of Nuclear Studies. Applicants to be considered must hold an undergraduate degree at the time of entering the fellowship period and must be citizens of the United States. Information may be obtained from the heads of science and engineering departments of colleges and universities or from the University Relations Division, Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge, Tenn. Applications must be received by the institute by March 1, 1952.

Society Elections.—Officers of the American Therapeutic Society for 1951-1952 include Dr. Wendell B. Gordon, Pittsburgh, president; Dr. Oscar B. Hunter, Washington, D. C., secretary, and Dr. Howard Wakefield, Chicago, treasurer.——The Central Neuropsychiatric Association, meeting in St. Paul and Minneapolis October 19-20, chose the following officers for the coming year: Dr. Raymond Walter Waggoner, Ann Arbor, Mich., president; Dr. Lee M. Eaton, Rochester, Minn., vice-president; Dr. Hamilton F. Ford, Galveston, Texas, secretary-treasurer, and Dr. Frank H. Luton, Nashville, Tenn., counselor. The next meeting will take place in Nashville, Tenn., at an undetermined date in October, 1952.——Following the annual meeting of the American Society of Anesthesiologists, Inc., in Washington, D. C., November 5-8, the following physicians assumed office: Dr. C. Walter Metz, Denver, president; Dr. Ralph T. Knight, Minneapolis, president-elect; Dr. J. Earl Remlinger Jr., Evanston, Ill., reelected secretary, and Dr. Moses H. Krakow, Bronx, N. Y., reelected treasurer.

Animal Research in United States.—The legal status of animal research in the United States is illustrated in map form in a new booklet, "Expediting Medical Progress," recently published by the National Society for Medical Research. The map shows which states now provide for the use of unclaimed animals in scientific studies, which states provide definite legal recognition of animal experimentation, and states with laws limiting biological research. Also indicated are those cities which provide for the use of unclaimed pound animals in scientific studies. Four states (Minnesota, Wisconsin, South Dakota, and Oklahoma) and 27 cities now have specific laws or ordinances which save otherwise doomed pound animals for research use. Three states (Maine, Massachusetts, and Pennsylvania) now have laws which limit biological research. Fifteen states provide definite legal recognition of animal experimentation, and 26 are without either law or recognition in this respect. The book outlines the barriers to medical progress that have been promulgated by various antimedical research groups and describes the ways in which these barriers have been broken down through the program of the National Society for Medical Research. Copies of the booklet may be obtained from the society's headquarters, 185 N. Wabash Ave., Chicago 1.

Dermatology and Syphilology Meeting.—The annual meeting of the American Academy of Dermatology and Syphilology will be held in Chicago at the Palmer House December 8-13 with Dr. Donald M. Pillsbury, Philadelphia, presiding as president. Principal sessions will be held in the Palmer House December 10-13, with special courses in histopathology and mycology scheduled for December 8-9 at the medical schools of the University of Illinois and Northwestern University. Special courses in x-ray and radium therapy, bacteriology of the skin, anatomy and embryology of the skin, and special problems in dermatohistopathology will be held Saturday and Sunday at the Palmer House. Special lectures will be given on "Bacterial Infections of the Skin," by Dr. Pillsbury; "Recent Experience in the Use of Cortisone with Corticotropin (ACTH)," by Dr. Rachmiel Levine, Chicago; "The Present Status of Research in Cancer," by Dr. Cornelius P. Rhoads, New York; "Clinical Significance of Disturbances in Sweat Delivery," by Dr. Marion B. Sulzberger, New York, and "Newer Knowledge of Pituitary-Adrenal Physiology," by Dr. Jerome W. Conn, University of Michigan, Ann Arbor.

International Society for Geographic Pathology.—This society, whose activities were interrupted by the war, has been reorganized. Infectious hepatitis will be the subject for the next conference to be held in Liege, Belgium, July 15-18, 1952. The national committees in various countries are now collecting data on this subject for presentation at the conference. The International Society for Geographic Pathology was organized in 1938 by Prof. M. Askanazy of Geneva, Prof. L. Aschoff of Freiburg, and Prof. R. de Josselin de Jong of Utrecht. National committees were organized in some 26 countries. Dr. Virgil H. Moon of the University of Miami organized the National Committee for the United States. The method of procedure was to choose some disease entity and for the committees to gather all pertinent evidence concerning its etiology, clinical features, pathologic features, geographic variations, and distribution in each of the several countries. This information was collected, abstracted, and presented as a basis for the program of each triennial conference. Subjects discussed have been cirrhosis of the liver, arterial sclerosis, and the anemias. Those who plan to attend the conference should make travel reservations far in advance. For information address Dr. Virgil H. Moon, Secretary, Medical Research Unit, University of Miami, Coral Gables, Fla.

International Congress of Internal Medicine.—The second International Congress of Internal Medicine will be held in London from Sept. 15-18, 1952, at Friends House, Euston Road, London. N.W.1. Members of the International Society of Internal Medicine who intend to be present should send their names to the secretary of the Congress Committee. Communications should be addressed to Sir Harold Boldero, Royal College of Physicians, 12 Pall Mall, East, London, S.W.1, not later than April 1, 1952. Nonmembers of the society who plan to attend should send in their names through their National Associations so that they reach the congress secretary in London by April 1, 1952. Dr. Albert M. Snell, 300 Homer Avenue, Palo Alto, Calif., would be glad to know of any who may be interested in such attendance. The following program has been drafted:

Sept. 15, afternoon, Disturbances of Intestinal Absorption with Particular Reference to Disorders of Fat Absorption.
Sept. 16, morning and afternoon, Clinical Aspects of Disturbances of Fluid and Electrolyte Balance.
Sept. 17, Some Aspects of Neurotropic and Myotropic Virus Disease.
Sept. 18, morning, visits to hospitals.

Abstracts of the communications of the chief speakers will be translated into English, French, and German and will be printed in advance by the Congress Committee so that they can be available to delegates.

International Discussion of Alcoholism.—Twenty internationally known specialists led discussion groups at the first European seminar and lecture course on alcoholism in Copenhagen October 29-November 2. The conference was sponsored by the Danish Government, in cooperation with the World Health Organization and the United Nations, and the participants represented 11 countries. Lectures were given on the following subjects: alcoholism as a public health problem, alcohol metabolism, alcohol and nutrition, alcoholic mental disorders, tetraethylthiuramdisulfide (antabuse®) in the treatment of alcoholism, drinker types, the neurotic alcoholic, the criminal alcoholic, the alcoholic woman, and group therapy. The conference heard also a lecture on the work of "Alcoholics Anonymous." The faculty of the seminar and lecture course was headed by E. M. Jellinek, Sc.D., of the World Health Organization, and Dr. Max Schmidt of Copenhagen. Other lecturers were Dr. Stjepan Betlheim, Zagreb; Dr. Leon Derobert, Paris; Dr. P. Esser, Amsterdam; Dr. Robert E. Fleming, Cambridge, Mass.; Dr. S. Forssman, Stockholm; Dr. L. Hakola, Helsinki; Dr. A. Jojer, Stockholm; Dr. E. Jacobsen, Copenhagen; Dr. G. Lundquist, Stockholm; Dr. I. Matte, Santiago de Chile; Dr. Jules H. Masserman, Chicago; Dr. Max Mueller, Berne, Switzerland; Dr. Ø. Ødegard, Oslo; Dr. H. Pullar-Strecker, London, and Dr. V. Wedell-Wedellsborg, Copenhagen.

FOREIGN

Personal.—Dr. Herbert Pieter, professor of clinical medicine at the University of San Domingo, Dominican Republic, has been decorated by the French Government with the plaque of Chevalier de la Légion d'Honneur.

Typhoid in Sicily.—A total of 935 cases of typhoid fever was reported in Sicily for the month of September, according to the U. S. Public Health Service. An epidemic has been occurring in Augusta on the east coast. Over 300 cases have been reported in this area.

Drug Research Institute in India.—The Council of Scientific and Industrial Research of India established six national laboratories during 1950 and will launch five more in 1951. According to a statement in *Nature,* the seventh of the series will be devoted to research on drugs. The city of Lucknow, in which is located a university with a medical school and a teaching hospital, was selected. The government of the state offered the historic Chatter Manzil Palace as a gift to the council to house the proposed Drug Research Institute. The institute, it is reported, will promote drug research, test and standardize drugs discovered by the institute, provide expert advice for their further development and production, offer research facilities and advice to scientific workers, universities, and industry, organize controlled clinical trials of drugs in clinics, and disseminate scientific knowledge relating to drugs. The institute was developed under the guidance of Sir Edward Mellanby, who is to be succeeded by Dr. B. Mukerjee, director of the Drug Institute in Calcutta. The institute likewise has had the advantage of guidance of Col. R. N. Chopra. According to Colonel Chopra, the cost of essential drugs in India has been mounting higher and higher, whereas the masses in India are too poor to obtain treatment even for minor ailments. Sir Edward Mellanby emphasized that for nation's health drugs can at best form the second line of defense; the first line must always be the public health services. He also pointed out that whereas a large number of the plants from which drugs in the pharmacopeia are made are already grown in this country, many of these drugs are imported in large quantities.

DEATHS IN OTHER COUNTRIES

Dr. Donald S. McEachern, associate professor of neurology at McGill University Faculty of Medicine, Montreal, and senior neurologist at the Montreal Neurological Institute, died at his home October 31, aged 47. He was president of the Canadian Neurological Society.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

ATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II,* Jan. 28-30. All enters where there are five or more candidates. Final date for filing plication is Dec. 17. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., iladelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Various Locations, July 18. Final date for filing application is Jan. 18. Sec., Dr. C. B. Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various centers. March 1952. *Oral.* Chicago, May 1952. Final date for filing application is Feb. 1, 1952. Candidates for these tests must have completed three years of approved training prior to July 1, 1952. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 examination is Jan 1, 1952. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written.* Feb. 1, 1952. Final date for filing applications was Nov. 1. *Oral.* Chicago, June 9-13, 1952. Final date for filing application is Feb. 1, 1952. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Twenty-five centers, Feb. 4-5, 1952. Sec., Dr. Edwin B. Dumphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Final date for filing applications for the 1952 Part II examinations was Aug. 15. Final date for filing application for the 1952 Part I examination is Nov. 30. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

AMERICAN BOARD OF PEDIATRICS: Written examination under local monitors, Jan. 11. This is the only written examination which will be given during 1952. *Oral.* New York City, Feb. 1-3; St. Louis, Mo., April; Washington, D. C., May 3-5; San Francisco, late June; Chicago, October and Boston, late November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Parts I and II.* Chicago. June 9-10. Sec., Dr. Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga.

AMERCIAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral* New York, Dec. 17-18. Final date for filing applications was Sept. 1. Act. Sec., Dr. David A. Boyd Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Spring 1952. Final date for fi application is Dec. 31. Sec., Dr. B. R. Kirklin, 102-110 Second Av., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers. March 195 Final date for filing application was Dec. 1, 1951. *The following writ examination will be given in October 1952.* Sec., Dr. J. Stewart Rodm 225 S. 15th St., Philadelphia.

BOARD OF THORACIC SURGERY: Various parts of the country. *Written.* Feb 29, 1952. Final date for filing application is Jan. 15. Sec., Dr. Willia M. Tuttle, 1151 Taylor Ave., Detroit 2.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 9-13, 1952. Final date f filing applications was Sept. 1. Sec., Dr. Harry Culver, 30 Westwood Rd., Minneapolis 16.

MEETINGS

AMERICAN MEDICAL ASSOCIATION CLINICAL SESSION, Los Angeles, Dec. 4-7. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Mayfair Hotel, Los Angeles, Dec. 3-4. Dr. Edwin P. Jordan, Box 114, Charlottesville, Va., Executive Director.

AMERICAN PSYCHOANALYTIC ASSOCIATION, Waldorf-Astoria Hotel, New York, Dec. 6-9. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

AMERICAN SOCIETY FOR SURGERY OF THE HAND, Palmer House, Chicago, Jan. 25-26. Dr. J. H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, William Penn Hotel, Pittsburgh, Jan. 18-19. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASES, Hotel Roosevelt, New York, Dec. 14-15. Dr. Clarence C. Hare, 170 Maple Ave., White Plains, N. Y., Secretary.

INTERNATIONAL MEDICAL ASSEMBLY OF SOUTHWEST TEXAS, Municipal Auditorium, San Antonio, Jan. 22-24. Dr. John J. Hinchey, P. O. Box 2445, San Antonio 6, Secretary.

MEDICAL PUBLIC RELATIONS CONFERENCE, Biltmore Hotel, Los Angeles, Dec. 2-3. Mr. Leo E. Brown, 535 N. Dearborn St., Chicago 10, Director.

PUERTO RICO MEDICAL ASSOCIATION, Santurce, Dec. 12-16. Dr. Victor J. Montilla, P. O. Box 3866, Santurce, Secretary.

RADIOLOGICAL SOCIETY OF NORTH AMERICA, Chicago, Dec. 3-7. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

SOUTHERN SURGICAL ASSOCIATION, The Homestead, Hot Springs, Va., Dec. 4-6. Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn. Secretary.

INTERNATIONAL

AUSTRALASIAN MEDICAL CONGRESS, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

INTERNATIONAL COLLEGE OF SURGEONS, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, Mexico City, Mexico, Dec. 11-19. Mrs. Grace E. O'Neill, Division of World Affairs, National Association on Mental Health, 1790 Broadway, New York 19, N. Y., U. S. A.

INTERNATIONAL CONGRESS ON NEUROPATHOLOGY, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, *London, England,* July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Hon. Secretary.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Panama City, R. P., Feb. 24-29. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York, N. Y., U. S. A., Executive Director.

NEURORADIOLOGIC SYMPOSIUM, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY, Mexico City, Mexico, Jan. 6-12. *Dr. Luis Sanchez Bulnes, Gomez Farias 19, Mexico 4,* D.F., Secretary-General.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHOESOPHAGOLOGY, Havana, Cuba, Jan. 20-24.

PAN AMERICAN CONGRESS OF PEDIATRICS, Montevideo, Uruguay, Dec. 5-8. Dr. Maria Luisa Saldien de Rodriguez, Avenida 18 de Julio, 1246, Montevideo, Uruguay, General Secretary.

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE, Montevideo, Uruguay, Dec. 2-8. Dr. Elizabeth Mason Hohl, 1234 North Vermont Ave., Los Angeles 27, Calif., U. S. A., President.

DEATHS

Adson, Alfred Washington ⊕ Rochester, Minn., professor of neurosurgery at University of Minnesota Graduate School, died in Midway Hospital, St. Paul, November 12, aged 64, of coronary occlusion. Dr. Adson was born in Terril, Iowa, March 13, 1887. He received his medical degree at the University of Pennsylvania School of Medicine in Philadelphia in 1914. On July 1, 1914, he entered the Mayo Clinic as a fellow in surgery and became a member of the permanent staff on Jan. 1, 1917. He was head of the section of neurological surgery until October, 1946, when he became senior consultant. During World War I he was a first lieutenant in the medical reserve corps of the United States Army. In 1922 he was commissioned a major in the Officers Reserve Corps, and later a colonel. He was a member of the National Research Council's subcommittee on neurosurgery. Dr. Adson was a specialist certified by the American Board of Psychiatry and Neurology and the American Board of Neurological Surgery, of which he was chairman. He was a member of the founders group of the American Board of Surgery, past president of the Minnesota State Medical Association, a fellow of the American College of Surgeons, a member of the American Surgical Association, Western Surgical Association, Society of Neurological Surgeons, American Neurological Association (former president), Association for Research in Nervous and Mental Diseases, Association of Military Surgeons of the United States, International Surgical Association, International Neurological Association, World Medical Association, Société Internationale de Chirurgie, Central Neuropsychiatric Association, Western Surgical Association (vice-president in 1936), Minnesota Society for Neurology and Psychiatry (president in 1943), Minnesota Neurological Society, Minneapolis Surgical Society, and an associate member of the Minnesota Academy of Medicine. He was a member of Phi Rho Sigma, Alpha Omega Alpha, and Sigma Xi, and an honorary fellow of the Greek Surgical Society and the International College of Surgeons. From 1941 to 1948 Dr. Adson was a member of the House of Delegates of the American Medical Association. He served two three-year terms on the Association's Council on Medical Service and was chairman of the council's seven-member committee on prepayment of hospital and medical service. Since 1929 he had been a member of the state board of medical examiners, serving as president for two years. He was a member of the Medical Council of the Veterans Administration, the council on medical service and public relations, advisory committee for the medical unit of the division of social welfare of the Minnesota Department of Social Security, member of the Commission on Associated Medical Plans; chairman of the Minnesota State Medical Service Committee, and president of the Northwest National Conference. In 1948 he was awarded the honorary doctor of science degree from the University of Nebraska. In 1933 Dr. Adson presented the third annual Walter M. Brickner Lecture at the Hospital for Joint Diseases in New York and the third annual Mayo Lecture on Surgery at Northwestern University Medical School in Chicago. He was a contributor of more than 242 articles to medical journals.

Groedel, Franz Maximilian ⊕ New York; born in Bad Nauheim, Germany, May 23, 1881; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1904; instructor at the University of Frankfurt from 1919 to 1934 and later professor on the medical faculty; served as director of Kerckhoff Heart Research Institute in Bad Nauheim, where he was cardiologist to the Heart Sanitarium from 1904 to 1934; chief of the x-ray department at the Holy Ghost Hospital, Frankfurt am Main, Germany, from 1910 to 1934; came to the United States in 1934; research fellow at the Biological Laboratories at Fordham University; consulting cardiologist, Lenox Hill Hospital; attending cardiologist, Beth David Hospital; cardiologist, St. Anthony's Hospital; past president of Deutsche Röntgengesellschaft and Frankfurter Röntgengesellschaft; formerly member of the board of directors of the German Heart Association and Deutsch Balneologische Gesellschaft; member of the American Heart Association, New York Heart Association, New York Cardiologist Society, American Association of the History of Medicine, and International Society of Medical Hydrology; honorary member of the X-ray Society of Chicago, American College of Radiology, Medical Society of Bologne, Italy, and Hessian Roentgen Society; served as military surgeon during World War I; co-author with Dr. Paul R. Borchardt of "Direct Electrocardiography of the Human Heart"; author of many books, brochures, and articles on x-ray examination and diseases of the heart; died October 12, aged 70, of cerebral hemorrhage.

Federspiel, Matthew N. ⊕ Milwaukee; born Sept. 15, 1879; Milwaukee Medical College, 1910; also held a D.D.S. degree; member of the founders group of the American Board of Surgery; specialist certified by the American Board of Plastic Surgery, Inc.; fellow of the American College of Surgeons; life member of the Milwaukee Academy of Medicine; member of the American Dental Association, Wisconsin Academy of Dentists, and the American Society of Orthodontists; associate clinical professor of plastic and maxillofacial surgery, emeritus, at Marquette University School of Medicine, where he served on the medical faculty for 22 years and on the dental staff for 38 years; affiliated with Milwaukee County Hospital, St. Joseph's Hospital, and St. Michael's Hospital; author of the book, "Harelip and Cleft Palate," published in 1927; died in Minocqua September 6, aged 72, of pulmonary infarct.

Wilcox, DeWitt Gilbert ⊕ Newton, Mass.; born in Akron, Ohio, January 15, 1858; Homeopathic Hospital College, Cleveland, 1880; an Associate Fellow of the American Medical Association; professor emeritus of gynecology at the Boston University School of Medicine; fellow of the American College of Surgeons; past president of the New England Physical Therapy Society; served on the staff of Newton-Wellesley Hospital in Newton Lower Falls; on the staff of the Westboro (Mass.) State Hospital from 1920 to 1932; formerly practiced in Buffalo, N. Y., where he was for many years on the staffs of Buffalo Homeopathic Hospital and Erie County Hospital, and surgeon-in-chief at Lexington Heights Hospital; died September 26, aged 93, of cardiorenal failure.

Hartley, Harriet Louise ⊕ Philadelphia; born in New York, November 14, 1874; Woman's Medical College of Pennsylvania, Philadelphia, 1903; served as professor of preventive medicine, hygiene, and public health at Temple University School of Medicine; member of the American Public Health Association; past president of the Pennsylvania Public Health Association, which in 1944 presented her an award of merit for outstanding work in child hygiene; for many years chief of child hygiene for the Philadelphia Bureau of Health; awarded the honorary degree of doctor of science from Philadelphia College of Pharmacy and Science in 1943; died October 18, aged 76.

Bucher, Carl Joseph ⊕ Philadelphia; born in Logansport, Ind., in 1890; University of Pennsylvania School of Medicine, Philadelphia, 1916; associate professor of pathology at Jefferson Medical College of Philadelphia; member of the American Association of Pathologists and Bacteriologists, College of American Pathologists, Society of American Bacteriologists, and the American Society of Clinical Pathologists; specialist certified by the American Board of Pathology; served during World War I; director of the clinical laboratories of Jefferson Medical College Hospital; died October 9, aged 61.

Anderson, William Sailer, Memphis, Tenn.; Medical Department of Tulane University of Louisiana, New Orleans, 1900; member of the American Medical Association; died September 27, aged 74, of coronary occlusion and Parkinson's disease.

Austin, John Watson, High Point, N. C.; Jefferson Medical College of Philadelphia, 1910; died August 20, aged 68, of carcinoma of the prostate.

⊕ Indicates Fellow of the American Medical Association.

Bakal, Sondra Florence, Brooklyn; Long Island College of Medicine, Brooklyn, 1934; on the staff of the Kings County Hospital; died in Mount Sinai Hospital, New York, August 22, aged 42.

Barnes, John Wesley, Hudson, Mich.; Columbus (Ohio) Medical College, 1892; died July 23, aged 83.

Barnett, James Miller ⊕ Albany, Ga.; Atlanta College of Physicians and Surgeons, 1902; fellow of the American College of Surgeons; surgeon, Phoebe Putney Memorial Hospital; died September 12, aged 72, of coronary thrombosis and hypertension.

Barnhardt, Harry A. ⊕ Pittsburgh; Medico-Chirurgical College of Philadelphia, 1897; on the courtesy staffs of Passavant and Pittsburgh hospitals; died August 11, aged 82, of coronary occlusion.

Bartlett, Oliver Leslie, Pittsfield, Mass.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1887; member of the American Medical Association; for many years on the staff of Pittsfield General Hospital; died October 8, aged 91.

Billingsley, Clarence B., Fort Smith, Ark.; Memphis (Tenn.) Hospital Medical College, 1910; member of the American Medical Association; affiliated with St. Edward's Mercy Hospital and Sparks' Memorial Hospital, where he died September 11, aged 69, of a heart attack.

Blackburn, Mary Baker, Marion, S. C.; University of Nashville (Tenn.) Medical Department, 1899; died September 3, aged 74.

Blackwood, Leslie W., Oak Park, Ill.; The General Medical College, Chicago, 1923; medical examiner for the Pennsylvania Railroad for many years; on the staff of South Shore Hospital in Chicago; died August 6, aged 58, of coronary thrombosis.

Bonney, Charles Austin Jr. ⊕ New Bedford, Mass.; University of Vermont College of Medicine, Burlington, 1898; an associate fellow of the American Medical Association; fellow of the American College of Surgeons; served on the staff of St. Luke's Hospital, died in Taunton recently, aged 74, of bronchopneumonia.

Booth, William Mason, Hartselle, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1902; died August 7, aged 77, of cerebral concussion.

ell, Harry Matthew, Waynetown, Ind.; University of ville (Ky.) Medical Department, 1893; member of the ican Medical Association; served during World War I; in Culver Hospital, Crawfordsville, September 28, aged 83, of cerebral hemorrhage.

Bowers, Merlin Hulbert, Mackinaw Island, Mich.; Detroit College of Medicine, 1910; died in Port Huron September 28, aged 67, of tumor of the pancreas.

Bratrude, Amos Presily, Antioch, Ill.; University of Illinois College of Medicine, Chicago, 1924; served during World War II; died in the Veterans Administration Hospital, Hines, October 8, aged 51, of bilateral subdiaphragmatic abscess due to carcinoma of sigmoid colon with perforation.

Bressler, Alexander H. ⊕ Wamego, Kan.; University of Louisville (Ky.) Medical Department, 1894; died in Genn Hospital September 18, aged 79, of cerebral hemorrhage and hypertension.

Broady, George A., Houston, Texas; Physio-Medical College of Indiana, Indianapolis, 1891; died September 12, aged 86, of pneumonitis.

Brunson, Peter Alexander ⊕ Ridge Spring, S. C.; Medical College of Virginia, Richmond, 1906; died in the Camden (S. C.) Hospital September 10, aged 74, of carcinoma.

Burns, Guy Wendell, St. Petersburg, Fla.; Chicago Homeopathic Medical College, 1895; died August 11, aged 82, of cerebral hemorrhage.

Bu Steed, Harry C. J., Ottawa, Ill.; Chicago College of Medicine and Surgery, 1913; member of the American Medical Association; died September 6, aged 73, of carcinoma of the lower bowel.

Colvert, George Washington, Miami, Okla.; Washington U versity School of Medicine, St. Louis, 1906; served during World War I; formerly on the staff of Miami Baptist Hospital; died in Veterans Administration Hospital, Muskogee, September 1, aged 71, of peritonitis and diverticulitis.

Dixon, Howard Bucknam ⊕ San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1913; affiliated with Southern Pacific, St. Luke's, and Mary's Help hospitals; died September 21, aged 62.

Dougherty, Barbara E., Chariton, Iowa; Ensworth Medical College, St. Joseph, Mo., 1892; died July 20, aged 83, of carcinoma of the sigmoid.

Dull, Cecil Fay ⊕ Richland Center, Wis.; Rush Medical College, Chicago, 1926; for many years health officer; served overseas during World War I; died October 13, aged 55, of lung abscess and carcinoma of the gallbladder.

Ebersole, Francis Fisher ⊕ Mount Vernon, Iowa; Johns Hopkins University School of Medicine, Baltimore, 1906; past vice-president of the Linn County Medical Society; for many years on the staff of St. Luke's Hospital in Cedar Rapids; died in Oxford, Neb., August 7, aged 73, of injuries received in an automobile accident.

Eckstein, Arthur William, Grand Meadow, Minn.; Northwestern University Medical School, Chicago, 1912; died July 19, aged 64

Ehrenfried, Albert ⊕ Boston; Harvard Medical School, Boston 1905; fellow of the American College of Surgeons; consultin surgeon at the Beth Israel Hospital, Boston City Hospital, Chi dren's Hospital, and the Jewish Memorial Hospital; died i Massachusetts General Hospital September 25, aged 71, adenocarcinoma of the right kidney with metastases.

Fagen, Rodney Pierce, Des Moines, Iowa; Drake Universi College of Medicine, Des Moines, 1912; served during Wor War I; *member of the American Medical Association*; former state health commissioner and secretary of the state board medical examiners; at one time county physician; died in Mer Hospital September 20, aged 65, of carcinoma.

Fiore, Autino, Cambridge, Mass.; Tufts College Medical Scho Boston, 1942; certified by the National Board of Medical E aminers; member of the American Medical Association; co missioner of public health; served during World War II; on t staff of Mount Auburn Hospital; died October 21, aged 34, coronary thrombosis.

Gately, Tracy Thomas ⊕ New Orleans; Tulane University Louisiana School of Medicine, New Orleans, 1917; speci certified by the American Board of Radiology; served duri World War I; member of the Radiological Society of No America and the American College of Radiology; served on t staffs of Hotel Dieu and Mercy Hospital, where he died Augu 3, aged 56, of cirrhosis of the liver.

Gentry, Isaac Lloyd, Maysville, Okla.; Tennessee Medical C lege, Knoxville, 1897; died in N. H. Lindsey Memorial Hospit Pauls Valley, August 28, aged 83.

Germain, Harry Homer ⊕ Belleair, Fla.; Harvard Medi School, Boston, 1898; member of the Massachusetts Medi Society; fellow of the American College of Surgeons; forme consulting surgeon, Sturdy Memorial Hospital, Attleboro, a Beverly (Mass.) Hospital, and surgeon-in-chief, Charlesgate H pital, Cambridge; died October 5, aged 76, of pneumonia.

Gibbs, Meyler David ⊕ Santa Fe, N. Mex.; College of Phy cians and Surgeons, Keokuk, Iowa, 1896; from 1937 to 19 represented Harding County in the state house; died in St. Vi cent Hospital October 22, aged 82, of arteriosclerosis.

Goraczewski, Thaddeus Clemens, South Bend, Ind.; Marque University School of Medicine, Milwaukee, 1936; member of t American Medical Association; died in St. Joseph Hospi August 23, aged 44, of coronary occlusion.

Graham, Clarence Flack, Laconia, N. H.; Johns Hopkins U versity School of Medicine, Baltimore, 1913; formerly on t faculty of the Albany (N. Y.) Medical College; member of t American Trudeau Society; served on the staff of the Herma M. Biggs Memorial Hospital in Ithaca, N. Y.; died in Exet August 7, aged 64, of coronary occlusion.

uzzetta, Denis Philip, Milwaukee; Harvard Medical School, oston, 1926; member of the American Medical Association; rmerly clinical instructor in surgery at Marquette University hool of Medicine; served on the staffs of Milwaukee County ospital and Misericordia Hosptial; died in Columbia Hospital ptember 23, aged 49, of cerebral hemorrhage.

agic, Franklin Eugene ⊕ Richmond, Ind.; College of Physians and Surgeons of Chicago, School of Medicine of the Unirsity of Illinois, 1911; fellow of the American College of rgeons; served during World War I; affiliated with Reid emorial Hospital; consulting surgeon, Richmond State Hostal; died September 12, aged 65, of myocardial insufficiency.

all, Clyde William, Youngstown, Ohio; Ohio State University ollege of Medicine, Columbus, 1933; served as police surgeon; ed in Sharon (Pa.) General Hospital September 11, aged 47, injuries received when his automobile was struck by a train.

arrell, William S. Sr., Ruston, La.; Medical Department of ulane University of Louisiana, New Orleans, 1891; died Octor 6, aged 82.

awkins, James E., Caraway, Ark. (licensed in Arkansas in)09); died October 5, aged 71, as the result of suffocation from noke.

eileman, Jacob H., Waynesfield, Ohio; Starling Medical Colge, Columbus, 1897; died August 5, aged 87.

eller, Augustus Phillip, Centralia, Ill.; Chicago College of edicine and Surgery, 1910; member of the American Medical ssociation; past president of the Marion County Medical Soety; died in Illinois Central Hospital, Chicago, October 26, ged 65, of myelogenic leukemia.

ill, Edgar Ward Jr., Marietta, Ohio; Ohio State University ollege of Medicine, Columbus, 1916; member of the Amerian Medical Association; served during World War I; past presient, vice-president, and secretary-treasurer of Washington ounty Medical Society; on the staff of the Marietta Memorial Iospital; died September 2, aged 61.

Iowell, Elsey W., Oakton, Ky.; Hospital College of Medicine, ouisville, 1907; member of the American Medical Association; ied July 30, aged 72, of uremia, arteriosclerosis and diabetes nellitus.

Iutchison, Charles Wesley ⊕ Los Angeles; College of Physiians and Surgeons of Chicago, School of Medicine of the Uniersity of Illinois, 1908; for many years on the staff of Hollyood Presbyterian Hospital, where he died September 18, aged 8, of acute coronary occlusion.

llyes, Levi Roscoe, Palestine, Ill.; Central College of Physiians and Surgeons, Indianapolis, 1898; member of the American Medical Association; died recently, aged 78, of coronary occlusion.

Keith, Algenon Watson, Stamps, Ark. (licensed in Arkansas n 1903); member of the American Medical Association; died September 28, aged 70, of a heart attack.

Klemm, William John, Culver City, Calif.; Starling Medical College, Columbus, Ohio, 1900; died August 9, aged 80, of heart lock.

Knight, Thomas Estin, Farmville, Va.; Medical College of Virginia, Richmond, 1929; served during World War II; affiliated with Southside Community Hospital, where he died August 16, aged 48, of carcinoma of the lung.

Kruskal, Isaac David ⊕ Brooklyn; University and Bellevue Hospital Medical College, New York, 1907; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; consulting ophthalmologist at the Maimonides and Jewish hospitals; died recently, aged 71.

Lowry, James Barnett ⊕ Lakeland, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; University of Nashville (Tenn.) Medical Department, 1895; died July 22, aged 83, of arteriosclerotic heart disease.

MacBurney, LeRoy, Great Falls, Mont.; Bennett Medical College, Chicago, 1911; member of the American Medical Association; served during World War I; for many years county coroner and federal jail physician; died October 5, aged 65.

Manning, Harris W. ⊕ Emporia, Kan.; Rush Medical College, Chicago, 1897; member of the American Academy of Dermatology and Syphilology; on the staffs of the Newman Memorial County Hospital and St. Mary's Hospital, where he died September 8, aged 83, of cerebral hemorrhage.

Nast, Alfred G., Los Angeles; New York Homeopathic Medical College and Flower Hospital, New York, 1921; at one time on the faculty of the University of Michigan Medical School in Ann Arbor and the University of California Medical School in San Francisco; in 1925-1926 medical director of schools in Miami, Fla., where he was chief of the epidemiological service of the department of health; died August 11, aged 53, of arteriosclerotic heart disease.

Palmer, Jobe Judson, Needmore, Pa.; the Hahnemann Medical College and Hospital, Chicago, 1903; died July 3, aged 75, of cerebral hemorrhage.

Ruch, Jake D., Indianapolis; Indiana University School of Medicine, Indianapolis, 1947; served a residency at Indianapolis General Hospital where he died recently, aged 27.

Turner, Edward Wright, Belmont, Ohio; Ohio Medical University, Columbus, 1900; member of the American Medical Association; died in Ohio Valley General Hospital, Wheeling, W. Va., August 22, aged 76, of coronary thrombosis.

Unger, Abraham, New York; Columbia University College of Physicians and Surgeons, New York, 1912; served during World War I; on the staff of Mount Sinai Hospital; died September 10, aged 62, of coronary disease.

Vaden, Marshall Tate ⊕ Buena Vista, Va.; Medical College of Virginia, Richmond, 1915; for many years physician and surgeon for the Chesapeake & Ohio Railway Company; affiliated with Jackson Memorial Hospital in Lexington, where he died August 8, aged 64, of cerebral hemorrhage.

Van De Erve, Hubert, Menlo Park, Calif.; Rush Medical College, Chicago, 1905; formerly practiced in Carrington, N. D., where he was health officer and county coroner; died August 28, aged 77, of coronary thrombosis.

Van Lue, Joyce Warwick ⊕ Gettysburg, Ohio; Medical Department of the University of Cincinnati, 1913; served during World War I; member of the school board; on the staff of Wayne Hospital in Greenville; died in Massey, Ont., Canada, September 1, aged 59, of coronary infarction.

Wade, Carl Odis, Santa Ana, Calif.; University of Tennessee College of Medicine, Memphis, 1946; died September 16, aged 37.

Waynes, Blaine Arlington, Tulsa, Okla.; Meharry Medical College, Nashville, Tenn., 1916; one of the founders of Moton Hospital, where he died September 13, aged 64.

Weber, Joseph George, Chicago; Bennett Medical College, Chicago, 1915; member of the American Medical Association; on the staff of St. Elizabeth's Hospital, where he died Sept. 27, aged 67, of chronic myocarditis.

Williamson, James Holland, Danville, Ill.; Missouri Medical College, St. Louis, 1898; member of the American Medical Association; died September 9, aged 79, of carcinoma of the kidney.

Winn, John Harvey ⊕ Columbus, Ga.; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; served during World War I; died September 17, aged 63.

Withington, Alfreda Bosworth, North Adams, Mass.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1887; member of the American Medical Association and the Massachusetts Medical Society; died in the Pittsfield (Mass.) General Hospital October 1, aged 91, of hypertensive heart disease and arteriosclerosis.

Woodroof, William Lowe, Newnan, Ga.; Atlanta College of Physicians and Surgeons, 1912; member of the American Medical Association; died August 27, aged 70, of cerebral hemorrhage.

GOVERNMENT SERVICES

PUBLIC HEALTH SERVICE

Dysentery Among Korean War Prisoners.—The alarmingly high rate of dysentery among Chinese and North Korean prisoners of war in Korea has been reduced 75% by a team of Army, Navy, and civilian experts comprising Colonel Richard P. Mason of the Army Medical Service, Dr. Albert V. Hardy, consultant to the Armed Forces Epidemiological Board, and Dr. James Watt, chairman of the Commission on Enteric Infections of the armed forces.

When this team was called to Korea last April, dysentery was raging among 150,000 Chinese and North Korean prisoners, most of whom had contracted the disease before surrendering to American forces. An average of 80 prisoners a day out of the group of 150,000 was being admitted to the dysentery wards of American POW hospitals. Dysentery has been widespread among the Korean population for centuries.

The Army-Navy team acted swiftly, instituting intensive treatment procedures, including use of such antibiotics as terramycin, aureomycin, and chloramphenicol; it constructed new sewage facilities; and it set up a system for delousing all incoming prisoners, dusting them with DDT, and giving them haircuts, showers, and clean clothes.

These measures were taken on the island of Koje-do, 25 miles off the south coast of Korea, where the prisoners were concentrated. The team set up ward and treatment tents and used personnel of the Navy Fleet Epidemic Disease Control Unit and one of the Navy's laboratory ships for diagnostic procedures.

The solution of the waste disposal problem was a spectacular achievement. Three mountain streams which flowed into the bay on which the POW compound was situated were dammed. To accomplish this South Korean and POW labor was used over a period of six months to construct temporary-style dams in each of the three river valleys, thus creating artificial lakes which could be tapped with no energy other than the force of gravity. Then underground conduits were dug throughout the compound and an adequate supply of clean water was made available for drinking, bathing, laundering, and waste disposal.

The result of these and other measures was a sharp reduction in the incidence of dysentery and other intestinal diseases. The team is continuing its research and treatment activities and plans to return to the United States early next year.

Besides Colonel Mason and Drs. Hardy and Watt, team members include Ensign David C. Hamerick, U. S. Navy; Captain Frederick J. Payne of the Army Medical Service; Drs. Marion M. Brooke, Kelsey C. Milner, Paul Weinstein, Don Machel, and Don Schliessman of the U. S. Public Health Service; Dr. William Frye, dean of the Louisiana State University School of Medicine, and Dwight Frazier of the Bureau of Laboratories of the Florida State Board of Health.

Public Health Section in Burma.—Dr. Phillips F. Greene, formerly associate professor of surgery at the Medical College of the State University of New York, Brooklyn, from 1944-1950 associate dean at the Long Island College of Medicine, and for years head of the Department of Surgery, Yale in China (a medical school in China staffed by Yale University), has begun his assignment with the Public Health Section of the Economic Cooperation Administration Mission in Burma, joining 21 other Public Health Service officers who are stationed with the Burma Mission.

The general objectives of the section are to improve the health and economy of the country by establishment of modern disease control and sanitation programs. Special projects will include programs to improve medical and nursing education, demonstration, and control projects for venereal disease and malaria control, and training in environmental sanitation. In addition to Dr. Leroy R. Allen, head of the section, the staff consists of 10 physicians, 4 nurses, 7 engineers, and 1 scientist.

Dr. Greene is the third Public Health Service Officer to be assigned to the Medical College of the University of Rangoon, where he will teach surgery. Dr. George Adams is professor of pathology at the school and is also director of the laboratory of the college and hospital. Dr. Robert Page is acting as prof of pharmacology.

A special demonstration and teaching project has been e lished in Aung San Village, located near Rangoon. The vi is a rehabilitation camp established by the Burmese Go ment for insurgents who have surrendered. This project designed to train the subprofessional health workers that wi required for the sanitation and disease control programs pla by the Government. Dr. E. N. Hesbacker is in charge of demonstration.

The venereal disease control program is under the dire of Dr. William W. Harris. Rapid treatment methods are de strated in Rangoon under a special project headed by Dr. O nald H. Sheppard. A malaria control demonstration that phasizes residual spraying has been established in Akyab, i southern part of Burma. The project is directed by Dr. Agna. Two other public health demonstrations are being ducted in Bassein and Taunggyi. They provide traini maternal and child health, sanitation, and the control of municable diseases. Dr. Sherwin Isaacson is in charge demonstration at Bassein. The demonstration at Taung under the direction of Dr. Martin P. Hutt.

Survey of Working Conditions in India.—The Public Service announces that a team of three experts on ind hygiene has been appointed to assist the government of in a six-month survey of working conditions in selected indu

The survey, which was requested by the Indian Gover under the United States Point IV Program, will be con in cooperation with the technical staff of India's Minis Labor to determine the nature and extent of exposure to hazards of workers in three chief industrial centers.

The three-man team will make technical measuremen help develop safety and health standards and set up tech and procedures for putting sound safety and health pr into use. Special attention will be given to regular insp of work places, work injury record keeping, use of testing ratories, and implementation of labor laws. An importar of the work will be training of industrial safety and hea spectors. A series of seminars for selected personnel e in research and laboratory work will also be conducted team.

Environment and Health.—The Public Health Service ann publication of "Environment and Health," a book whic cusses health measures applied to the natural environ water, air, food, and the forms of animals and plant life affect public health, and man-made environment—the the school, the working place, the park, swimming pool playground—along with health aspects of man-made radi The final chapters deal with administration of environn health programs and research. A chapter on environn health deals specifically with new trends and developme

A limited edition of "Environment and Health" has been lished for distribution to health departments, sanitary schools of public health, and other professional audiences. C are available from the Superintendent of Documents, Go ment Printing Office, Washington 25, D. C., at 75¢ each.

Infant Mortality Decreased Seven Per Cent.—Infant mor rates in the United States decreased 7% in the last year, ac ing to the Office of Vital Statistics of the Public Health Se The estimated rate in 1950 was 29.2 deaths under 1 yea 1,000 live births, compared to a rate of 31.3 for 1949. The n part of the difference was for deaths of infants of 28 days thr 11 months, although some decrease occurred in the numb deaths of infants under 28 days old. Deaths in the neonatal p account for nearly 70% of all infant deaths. Since 1925 the mortality rate has declined 59%.

Among the leading causes of infant death are congenital formations, influenza and pneumonia, postnatal asphyxia, at tasis, and birth injuries. The group of diseases of the dige system that includes gastritis, enteritis, colitis, and diarrhea tinues as an important cause of death in infancy.

FOREIGN LETTERS

TALY

onvention of Cardiologists.—At the 13th National Convention the Italian Society of Cardiology in Naples, the first report as on cor pulmonale, which was discussed by Professor uddu, of the University of Rome. The second report, which was the heart in pulmonary tuberculosis, was presented by Dr. i Maria, also from the University of Rome. An additional 192 pers were presented. The next convention of Italian cardiolo-sts will be held in Taormina.

Professor Puddu defined cor pulmonale as the cardiopathy used by a pulmonary hypertension that is not caused by cardiac sions. The study of this disease concerns the heart, the pul-onary circulation, and the respiratory function. With regard to e examination of the heart, observations of physical nature are nerally of little help; roentgenologic investigation may show e increasing enlargement of the right cavities, and electro-rdiographic examination may reveal the various pictures tributable to the two main forms of cor pulmonale: acute and ronic. Of much usefulness may be the determination of the locity of the blood flow. The investigations of the pulmonary rculation should include the determination of the systolic, astolic, and mean pressure in the right auricle, the right ven-icle, and in the pulmonary artery. The capillary pressure and e quantity of blood circulating in the lungs should also be termined. It is also necessary to study the respiratory func-on from the point of view of ventilation and of gaseous ex-ange. The various mechanisms that alter these functions con-itute the various forms of pulmonary insufficiency. The study the pulmonary circulation and of the respiratory function re-uires complex techniques, today greatly improved, that permit better cognizance of these functions in normal as well as in thological conditions.

Professor Puddu, in a short discussion of the anatomy and ysiology of the pulmonary circulation, pointed out that in e lung there is a functioning circulation and a reserve circu-tion, and also that in addition to the capillary alveolar system ere probably is an anastomotic arteriovenous system. From the iological point of view, cor pulmonale may be due to anatomic terations of the thoracic cavity, to diseases of the pulmonary renchyma, to diseases of the pulmonary vessels, and to other seases. The course can be classified in acute, subacute, and ronic. It is known that the syndrome of acute cor pulmonale ay be due to many other causes besides pulmonary embolism.

With regard to the general pathogenesis of this disease, it ould be emphasized that the main mechanism of the cardiac sion consists in the increased action of the right side of the art owing to the increased pulmonary resistance that causes evation of pressure in the arterial circulation. Another factor the increased action of the right side of the heart may be und in an increased pulsation, as has been observed in some lmonary diseases. Also, anoxemia may be a direct cause of rdiac lesions, and, in some cases of acute cor pulmonale, in ldition to the aforementioned factors, there may be also col-pse of the peripheral circulation, which may give rise to an chemic condition of the myocardium. Some coronary con-rictive reflexes originating in the lung may lead to an ischemic ndition of the myocardium. An example of acute cor pul-onale is Uhlenbruck's syndrome.

Subacute cor pulmonale may be due to metastatic lymph-gitis of the lung and also, in rare cases, to protracted throm-sis of the pulmonary arteries in anemic persons. Chronic cor lmonale arises from a pathological process of long duration, hich leads to a slow and progressive increase of the arterial essure in the pulmonary circulation. Among the many causes the chronic form are parasites, interstitial pulmonary sclerosis, ronic emphysema, and, in particular, primary arteritis, hyper-nsion of the pulmonary circulation, and the possible primary disease of the alveolar wall. In diagnosis of the chronic cor pulmonale differentiation must be made between symptoms of pulmonary insufficiency and symptoms of cardiac insufficiency; this is a difficult but always very important task. Then the type of lesion, cardiac as well as pulmonary, should be determined. Sometimes differentiation of this disease from some congenital cardiac lesions is difficult.

The hemodynamics of the chronic cor pulmonale was also discussed. Particularly interesting is the question of decompensation with increased cardiac output. In these instances, the mechanism of decompensation is characteristically shown by premature anoxemia and gives an unusual aspect to all the hemodynamic reactions. In treatment one should consider the particular form of decompensation with increased output that is present in many of these patients and that modifies greatly the usual therapeutic response to the common cardiokinetics. An attempt should also be made to control anoxia, one of the main factors in the disease.

The Heart in Pulmonary Tuberculosis.—Dr. Di Maria emphasized that the opinions of phthisiologists on the possibility of heart lesions arising from tuberculosis have never been unanimous. While, in fact, some authors affirm that the tuberculous disease cannot determine lesions or functional disturbances of the myocardial fiber, others insist that this tuberculous entity may be the cause of structural alteration and functional impairment of the heart. One may say that today the presence of tuberculous infection in the heart is infrequent. The same cannot be said with regard to the indirect influence of the tuberculous disease on the integrity and the functioning of the myocardial fiber by means of mechanical, physiopathological, and biologic factors. Examples of mechanical causes, that is, those that may alter the normal condition and the balance of the factors regulating the intrathoracic hemodynamics, are pronounced displacements of the mediastinal organs, pronounced blocking and destruction of the vascular bed of the pulmonary circulation, and the "hydraulic press" action of coughing, according to the concept of Morelli. Physiopathological causes are those that in various ways may bring about and maintain conditions of myocardial anoxia. Biologic causes are represented by the toxinfectious action of the tuberculous agent on the myocardial muscle fiber, on the endocardium, and on interstitial heart tissue.

Dr. Di Maria has made numerous and careful investigations of this problem from various points of view. On more than 3,000 patients with chronic pulmonary ulcerofibrous tuberculosis, electrocardiograms were obtained with standard derivations as well as with Wilson's precordial leads or with some particular derivations suggested by the author himself for the study of the right side of the heart. He has also made anatomicopathological and statistical investigations on all the autopsies performed at the Institute Forlanini in Rome in the last 10 years. He has made a study of the respiratory function according to the Knipping-Scoz method on about 2,000 persons. He determined the venous pressure in the upper extremities and the rhythm of circulation in patients with pneumothorax of one or both sides. He obtained symptomatic and physiopathological data with regard to the heart in patients who had undergone thoracoplasty. He made histopathological studies of the heart of experimental animals that died of experimental tuberculous infection or of continuous administration of tuberculous toxins. On the basis of the results of these numerous researches, Dr. Di Maria is inclined to consider tuberculosis as a morbid entity that may have a considerable harmful action on the heart by various pathogenic mechanisms. However, he believes that the changes in the heart during the course of a tuberculous disease are not the same as those seen during the course of other chronic diseases of the respiratory apparatus. Therefore, according to him, the term chronic cor pulmonale with regard to tuberculous disease should be replaced by the term cor tuberculare. Considering the possibility of the presence of a lesion of the heart, he suggests a systematic study of the functions of the heart and the respiratory system in persons who are to undergo surgical collapse treatment.

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e items in these letters are contributed by regular correspondents in e various foreign countries.

BELGIUM

Gastroduodenal Perforations.—The Belgian Association of Surgery heard a report by Morelle, who, on the basis of his personal statistics (101 cases) and the experience of Herman Taylor, initiator of the aspiration method, concluded that gastroplication is not inferior to aspiration, provided that the delays of perforation (12 and 24 hours) are taken into consideration.

After this report Coryn presented statistics of gastrointestinal perforations treated at the Brugmann hospital. Preference was given to emergency gastrectomy (56 cases, with a mortality rate of 12%) rather than to simple gastroplication (30 cases, with a mortality rate of 36.6%). Dr. Coryn emphasized that the high mortality rate in the second group may be explained by the fact that gastroplication was reserved only for grave cases, in which gastrectomy did not seem to be justified. Samain routinely performed emergency gastrectomy in 121 cases of perforation, with a mortality rate of 3%. These excellent results are attributable to the use of dibucaine (nupercaine®) hydrochloride for spinal anesthesia, a method that, according to Samain, would definitely prevent shock. Aspiration should be considered only as a preparatory phase for gastrectomy. There are three indications for this intervention: (1) the pain, (2) the emotional strain endured by the patient during the time preceding the surgical intervention deferred for a long time, and (3) the economic factor, necessitating early resumption of activities by the patient.

Smets presents the statistics of 331 patients operated on at the Saint Pierre Hospital. He divides these statistics in two parallel and comparable series representing consecutive phases in the development of surgical concepts. The mortality rate thus has been reduced from 25% to 3%. This spectacular improvement is related entirely to the use of antibiotics and to the effective preoperative and postoperative care and not to the preference given in recent years to early gastrectomy. The analysis of late results also convinces one that gastroplication yields only moderately beneficial results and that those obtained with gastrectomy are by far superior, the incidence of secondary peptic perforations being almost negligible.

Legrand reports on 23 consecutive patients treated by aspiration combined with intraperitoneal injection of procaine penicillin without a single fatality. Aspiration is sometimes the only feasible method. Of 570 cases listed in the world literature there have been only 46 deaths, and, notably, in 23 cases surgical intervention was absolutely impossible. In summarizing the discussion, the conclusion may be drawn that there is not a single method that may be used exclusively for the treatment of perforation, but treatment varies with the individual case.

Enuresis.—Dellaert of Antwerp reported in the *Acta neurologiques et psychiatriques belges* studies of the etiology and of the psychiatric syndrome of enuresis. This "social disease" strikes 5% of the infant population and must be considered as an infantile form of neurosis. Contrary to incontinence, it can be defined as a psychomotor disturbance of micturition with physical integrity. The author discusses various associated organic symptoms that cannot be considered the real organic cause: spinabifida occulta, phimosis, adenoid vegetations, and cryptorchism, as well as various diatheses. In fact, four-fifths of persons with enuresis do not present externally any particular sign. Hereditary factors seem to intervene, being linked to irritability of the vesical walls or to an allergic component associated with a vagotonic state. The pathogenic role of deep sleep is doubted by the author. In regard to the mechanism of micturition, the author admits that cortical mechanisms of vesicourethral control may be present at birth, and this concept is based on the observation of behavior of the child at the time of the first micturition. He shows how the educators' carelessness and negligence lead to neurosis and psychogenic reaction, in which organic deficiencies direct the choice of the enuretic symptom, by which the most various conflicts can be exteriorized.

Fractures of the Calcaneus.—During a special session of the Belgian Orthopedic Association, a report was presented on studies made in treatment of fractures of the calcaneus and of their sequelae. This is a problem that has not yet been completely clarified. After discussing the anatomic and circulatory conditions of the region, Belenger called attention to the
high incidence of subastragalar talipes valgus and its thera
corollary: reduction and application of plaster cast in varus p
tion. The treatment must consist of an ambulatory plaster c
to make walking possible in cases of fracture without dis
tion, of reduction in cases of dislocation, or of extension f
lowed by arthrodesis in comminuted fractures. J. Gos
method consists essentially in (1) application of a Böhler's s
to the substragalar joint with traction according to Kirsch
method; (2) reduction by means of a pointed device of the t
of Steinman's pin introduced through the external aspect i
the focus of the fracture and lowered downward and backw
to lift up the thalamus; (3) a plaster cast to keep the poi
device in place for 30 days, then an ambulatory plaster cast
60 days. The speaker was reserved in regard to early arthrod
osteosynthesis, or the use of bone grafts, and in conclusion
stressed the importance of physiotherapeutic treatment and
absolute necessity of close collaboration of the surgeon
the physiotherapist.

Prof. Mandruzzato of Brescia also emphasized the diffic
of effective therapeutics. He studied a large number of inju
persons treated by extension and divided them in two gro
those with bad results (85%) and those with good results (15
He concluded that the final result depends more on the un
paired state of the articular surfaces than on the anatomic
toration. In cases of unimpaired articular surfaces he us
simple plaster covering a metallic splint, which pushes do
ward a transcalcaneous peg. In other instances, surgical expl
tion demonstrated that the problem is much more comp
After various tentatives, Mandruzzato, like many others,
sented to early arthrodesis. This spares the patient long
bility and much pain.

Low Back Pain.—At the Academy of Medicine, P. Glorieu
ported on some causes of lumbago in a paper entitled: "
of Static Origin in the Lumbar Region." He describes
types: 1. Neuralgia of the interspinous ligaments, inters
nearthrosis or Baastrup's disease, caused usually by violent
repeated contact of the spinous processes. It is frequently
ciated with greater density of the bone tissue of the upper
lower edges of the lumbar spinous processes. 2. The verte
of transition, sacralizations, and lumbarizations, which, a
speaker emphasizes, are not always painful when they are
and symmetrical, and give rise to scoliosis when they are
lateral. 3. Painful spondylolysis. The speaker stresses the
acteristic aspects of the roentgenologic pictures taken in va
exposures, as well as the abnormal aspects when roentgeno
examination is performed with the patient lying on his stom
and with the use of iodized oil (lipiodol®) as contrast med

Vitamin Therapy and Urinary Tuberculosis.—In an articl
the *Scalpel*, Stobbaerts reports the use of vitamin D in
therapy of renal tuberculosis. Massive and repeated vita
therapy, under strict control, acts with greatest efficacy
parenchymatous stages of the disease and in bilateral r
tuberculosis. In ulcerocaseous tuberculosis nephrectomy wil
move foci, which may later flare up. Nephrectomy shoul
delayed until the patient's resistance is increased. Vita
therapy will have a prolonged favorable effect on the co
of the sequelae of nephrectomy and will favor convalesce
Finally, in patients who for some reason cannot, or refuse
undergo surgical intervention, massive vitamin D therapy
always cause improvement, although this effect may be tem
rary.

Medical Days.—The 25th anniversary of the Medical Day
Brussels was celebrated this year. These meetings were first
ganized in 1920 by Dr. L. Mayer, Dr. R. Bernard, and Dr.
Beckers; they were discontinued during the war, and in 1
the annual sessions were resumed. This year they assumed
ticular importance. Prof. E. J. Bigwood, who presented the
augural address, reviewed the development of biochemis
emphasizing its increasing importance in the medical scien
He appealed to the public to support scientific research, so t
the University Laboratories can preserve their traditional r
He reminded the audience of the enlightened initiative of K
Albert, the initiator of the National Funds of Scientific
search, whose work must be continued and extended. Amo

lectures given, was that of Dr. E. Donzelot (Paris) on sur- l indications in mitral lesions, of Dr. D'Allaines (Paris) on gical treatment of mitral stenosis, of Dr. M. Segers (Brussels) recent progress in the diagnosis of mitral disease, and of Dr. Christophe (Liège), who presented a color film on ventricular llation.

Ir. G. Fanielle (Liège) presented the history of massive vita- D therapy, and pointed out the indications, inconveniences, the mechanism of action of such therapy. In addition to the ierous lectures, many groups held their meetings on this occa- , among them the Belgian General Association of Dentists, Belgian Association of Endocrinology, the Belgian Medical ociation of Physical Education and of Sports, the Belgian ociation of Scientific Studies on Tuberculosis and on Pneu- ogy, and the Medicosurgical Association of the National ociation of Belgian Railroads. The final meetings were held in ende, with a tour to the Palace of the Thermae and a lecture various aspects of utilization of radioactive isotopes.

igulants and Anticoagulants.—The annual Congress of the gian Association of Surgery met in extraordinary session at nt. Coagulants and anticoagulants were discussed. Van der den reviewed the indications and contraindications of various eral hemostatics, such as thrombin, fibrin foam, gelatin nge, and alginic acid products. Van Wien discussed anti- gulants. These substances were recently introduced for pre- tion and treatment of thrombosis. Heparin, bishydroxy- marin (dicumarol®) and its derivatives, and phenylindane- ne proved the most promising clinically. The author presented omplete pharmacologic study of these various products and cussed in detail the question of controlling their activity. then considered the method of administration and the results anticoagulant therapy in the various types of venous throm- is: postoperative thromboembolism, thrombosis of the retina, l mesenteric thrombosis.

Their usefulness in arterial thrombosis has proved to be isiderably less. On the other hand, in vascular surgery, use of heparin has permitted the safe performance of many icate interventions. The report ended with a discussion on administration of anticoagulants in certain infections, in irologic disturbances such as multiple sclerosis, for the pre- ition of peritoneal adhesions, in burns, and in the cicatrization wounds.

cephalitogenic Property of Vaccine.—Encephalitis occurring er vaccination against smallpox has recently been the sub- t of discussion. At the Central Laboratory of the Ministry of blic Health, Nelis and Lafontaine investigated the pos- ility of obtaining from an ordinary strain of vaccine a strain it would be regularly encephalitogenic. Their studies were o designed to determine whether, through the action of formal- iyde, the encephalitogenic strain could lose this characteristic ile maintaining its dermotropic properties. His results permit following conclusions: 1. An average vaccinal virus may quire constant encephalitogenic properties after a few re- ited passages to rabbits by intratesticular injection but with- t intracerebral injection. 2. The encephalitogenic tropism of virus may be observed, whether it is inoculated into the n, in the testicle, or in the brain. 3. This activation is accom- nied by classic changes in its dermotropic action. 4. This quired *encephalitogenic activity is lost through the action of* ak concentrations of formaldehyde (0.1:1,000) during 48 hours 20 C (68 F). 5. In the observed strain, the abnormal dermal inifestations presented by the activated virus disappear under peated action of formaldehyde.

incer of the Anus.—At the Belgian Society of Gastroenterol- y, Cogniaux, Simon, and Vigoni presented an important con- bution concerning treatment of epithelioma of the anus. The thors present a report of 37 cases, in which treatment con- ted mainly in irradiation by radon needles. The authors dis- iguish two stages and even perhaps a third. The first stage mprises tumors 3 cm. in diameter, which do not grow upward id do not involve the periphery of the anus. It is at this stage at best results are obtained: the lesion is locally sterilized, but e sequelae (rectitis, sclerosis, radionecrosis) may not be oided, nor can occasional recurrences. The second stage comprises tumors the circumference of which is not too great, but which grow upward or encircle the anus, as well as those tumors that already have metastasized. In some of these cases surgery is of no avail. Here, too, local sterilization may be obtained, but the undesirable effects are serious (rectitis, sclerosis, incontinence, radionecrosis). The authors feel that the technique should not be abandoned because of these sequelae, but should be improved.

DENMARK

Tuberculosis in Greenland.—During the last 30 years several reports on tuberculosis in Greenland have been published by Danish physicians more or less temporarily stationed in this dependency of Denmark. These reports, which are fair samples of diagnostic standards from time to time in most centers of medical science, have shown that tuberculosis in Greenland has behaved in much the same way as it has elsewhere in Europe. Here, as elsewhere, there are the various forms: primary infiltrations, primary complexes, exudative processes, and fibroses. The earlier reports, covering the years 1923-1935, depended largely on the older clinical tests with stethoscope and sputum examinations. During this period the tuberculosis rate was high, ranging from 12 to 20%. Among the more recent reports, based on modern tests, including radiologic examinations, is one by Dr. Mogens Fog-Poulsen who, in a community of 1,390 persons in the north of Greenland, found tuberculosis in 7%. Comparing stethoscopic with radiologic tests, he has come to the conclusion that the former are of doubtful value in the discovery of tuberculosis. He employs the Moro tuberculin plaster test, and gives BCG to the negative reactors. Though his tuberculosis rate may seem to compare favorably with the tuberculosis rates of his predecessors, he insists that tuberculosis continues to be one of Greenland's greatest scourges. This is not surprising, considering the conditions under which the Greenlander lives. Subsisting on seal-hunting, whaling, fishing, catching sea birds and collecting their eggs, he still lives in earth and stone buildings, at least as far as the outlying districts are concerned. These hovels may be warm enough but are difficult to keep clean. They are being replaced by wooden houses in the larger communities, where the old-fashioned furs and skins are being replaced by imported textiles. The fatalistic mentality of the good-natured Greenlander does little to encourage him to take active measures against tuberculosis.

Cerebral Tumor Diagnostic Mistakes.—At the psychiatric department of the Bispebjerg Hospital, Dr. Frederik F. Wagner has undertaken an analytical study of the 49 patients with cerebral tumor entering this hospital in the 12-year period, 1939-1950, with mistaken diagnoses at the time of admission. During the same period there was a total of 31,348 admissions to this hospital, so that cerebral tumors constituted only 0.15% of the admissions. This is a remarkably low rate, considering that earlier investigations have shown such cases to constitute between 0.5 and 2% of all hospital admissions.

These 49 patients were sent to the hospital with a great variety of diagnoses, none of which proved correct. In as many as 16 cases the original diagnosis was epilepsy. The correct diagnosis in these cases depended to a considerable extent on the frequent employment of air encephalography. The original and mistaken diagnosis was some form of psychosis in 19 cases, in 14 of which a depressive psychosis was diagnosed. It was noteworthy that among the total of 49 cases of cerebral tumor there were only 4 in which there was not some kind of psychic disturbance. In 37 of the 49 cases the correct diagnosis depended on a clinical examination in the hospital, and in 26 cases the diagnosis was verified at an operation. The diagnosis depended on a postmortem in the remaining patients. The correct diagnosis had already been made in some cases before the postmortem.

Dr. Wagner insists that the diagnosis of cerebral tumor may be difficult even at an advanced stage of the disease, and in many of his cases the tumor had already attained a considerable size. He has found little aid to correct diagnosis in general psychic symptoms, but he points out that when dementia sets in comparatively early in life, it is well to suspect an organic lesion.

CORRESPONDENCE

ANIMAL EXPERIMENTS

To the Editor:—A letter from Dr. J. R. Baker, Prof. Sir Frederic Bartlett, Prof. A. C. Hardy, Dr. E. Hindle, Major C. W. Hume, and Dr. W. R. Wooldridge was published in the *Lancet* on Aug. 6, 1949 (page 259), on the ethics of experiments on animals. The signatories wished to condemn as shocking to a normal human conscience experiments (referred to below) which were carried out in Canada and the United States in the investigation of shock.

The thesis of their argument can be briefly summarized thus: (1) Experiments of this kind are too cruel to be justified. (2) There should be a limit to the doctrine that the end justifies the means. (3) In this country the Cruelty to Animals Act (1876) would operate and prohibit experiments of like severity to those carried out abroad on traumatic shock.

References to the above experiments, not given in the letter, have now been obtained from Major Hume, who is director of the Universities Federation for Animal Welfare (U. F. A..W.) and who has stated that he was largely responsible for the publication of the letter.

In essence the experiments condemned in the letter were as follows.

The work of Gregersen and Root was essentially a study on traumatic shock and was carried out at the request of the Subcommittee on Shock of the Committee on Medical Research, Office of Research and Development, U. S. A., the work being done in the autumn and winter of 1941.

The object of the experiments was to determine, on the physical signs, whether or not the condition produced experimentally was a true replica of the syndrome of shock as observed in man. A second objective was to determine the degree of blood volume reduction in traumatic shock, and its role in the development of the shock syndrome. At the time these experiments were performed this essential knowledge had yet to be gained. Previous evidence included much work which appeared to show that a reduction in blood volume was the most important single factor traumatic shock. The evidence was not accepted as completely valid for two reasons. In the first place, there was controversy regarding the adequacy of methods for measuring blood volume. Secondly, the obvious disturbance in the blood flow in traumatic shock and the widely accepted view that excessive capillary leakage occurred in shock were considered adequate grounds for suspecting that the blood volume could not be determined in shock by any of the dilution methods.

To decide these fundamental questions Gregersen and Root experimented on dogs. The dogs were anesthetized, and traumatic shock was induced by hammering the limbs. The animals were then allowed to come out of the anesthetic in a state of shock.

The results reported in a series of papers by Gregersen and his colleagues showed: (1) The clinical signs displayed by the dogs were identical with those which in man constitute the syndrome of secondary shock. (2) The validity of the dye-dilution methods for the measurement of plasma volume is not fundamentally altered when the methods are applied to animals suffering from traumatic shock. (3) The blood volume is significantly and greatly reduced in traumatic shock, and the degree of reduction is related to the severity of the shock.

The experiments of Noble and Collip were devised to reproduce a required degree of shock. When research is planned to study the influence of some procedure or drug in the prevention or treatment of shock, great difficulty has been experienced in producing a consistent degree of shock in different experimental animals. It is therefore very hard to draw firm conclusions as to the merit or otherwise of the proposed method of treatment.

Noble and Collip designed a drum in which anesthetized rats were rotated and during each rotation fell from the top of the drum to the bottom, a distance of some 18 inches. The effects were very variable. When unanesthetized rats were used, the mortality rate with a given number of falls was less than anesthetized animals. The mortality rate was much more c sistent, increasing with the number of falls. It has been fo by many workers that anesthesia profoundly affects the resp to injury. In order to achieve the purpose of the experim namely, to produce a similar degree of trauma with sim effects on different groups of rats, Noble and Collip foun was necessary to use unanesthetized animals.

It should be emphasized that each single fall produced extremely mild injury; no fractures or hemorrhages into tissues were observed in these animals. In summary, Noble a Collip succeeded in producing a method by which relatively c stant mortality rates could be produced in successive batc of animals. This enabled them to study, with some confid in the validity of their results, the effects of various fracti of the adrenal cortex. No dramatic effects were, in fact, o served. However, there can be no doubt that their experim were of considerable value taken in conjunction with the r mainder of the great mass of experimental work on shock

One of the great medical achievements in World War II w the dramatic improvement in the treatment of battle and raid casualties. The fundamental principle of the treatment wound shock was "early and adequate blood transfusion." Th seems simple and obvious today. It was not so before the w It required widespread and concentrated experimental work a clinical observations by a large number of experienced inves gators in many different parts of the world to establish this pri ciple. The work of Gregersen and his collaborators, and Noble and Collip, formed an important part of these investi tions, which undoubtedly saved thousands of lives.

One serious consequence of the letter is that, as could h been anticipated, it is being used as antivivisectionist p ganda abroad and is embarrassing our Canadian and Ameri scientific colleagues. The antivivisectionist societies in their pr aganda *campaign actually quote the references* we have tained from Major Hume, and it is of interest to note th although these references were not given in the original let to the *Lancet*, the signatories to the letter stated they "will given to responsible enquirers on request." We are unable regard as responsible persons or societies whose avowed aim the prohibition of all animal experiments, a measure wh would be so profoundly against the public interest. The wi holding of references in the original letters seems, however, have been pointless, if we are right in assuming that they w supplied on request to antivivisectionists, who could only w to use them for antisocial purposes.

This ill-conceived letter concluded with an appeal to scient to condemn as shocking such experiments, but in the subsequ correspondence in the *Lancet* no scientist of repute did in f take part, let alone respond to this appeal. But the unfort consequence of this is that many of our Canadian and Am can colleagues regard the views expressed in the original let as representative of those of the generality of scientists o here. It is to disperse such a mistaken impression that this lett now appears. Of the signatories of the original letter, not o had ever had occasion to work on the difficult problem of sho although three of them held, or had at some time held a Ho Office license. We believe that scientists whose experience h brought them closer to this problem would have declined, a possibly did decline, to sign such a letter. All the signatori had this in common: they were members of U. F. A. W. Wou not this admirable organization spend its efforts to better eff in combating cruelty where ignorance and indifference prop gate it, instead of joining in the antivivisectionist witch hun

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OMPARATIVE ANATOMY

the Editor:—Dr. Louis J. Karnosh has given us a strong cle in his "Neurology and Human Emotions," in THE JOUR- OF THE AMERICAN MEDICAL ASSOCIATION (147:289 [Sept. 22] 1). In the same issue of THE JOURNAL, among the book re- vs, is mention of William King Gregory's two-volume work, olution Emerging, A Survey of Changing Patterns from neval Life to Man." I believe that the work of Dr. Karnosh of Dr. Gregory, the first in human anatomy, the second in iparative anatomy, fit together. They mesh. It may not be farfetched to mention that in the Oct. 6, 1951, issue of JOURNAL (page 568) the excerpt entitled "Medical Educa- i" starts with "The most important element in medical edu- on is theory. . . ." It seems that here we have three ks in a jig-saw puzzle, theory being the middle block binding ether the works of Dr. Karnosh and Dr. Gregory.

efore 1914, Dr. Gregory had opened his laboratory of com- ative anatomy to graduate students in the department of logy in Columbia University. There were possibly six or eight us. Once a week, leaving the university campus we spent an ire day in the American Museum of Natural History under Gregory. Some members of the class already held the degree loctor of philosophy. I happened to be the one to have that loctor of medicine.

herefore, it is my belief that cooperation between workers h as Dr. Gregory and anthropologists such as Dr. Ernest ert Hooton of Harvard, and other men whom they might ignate, can contribute a key to a certain number of problems ing Dr. Karnosh and his collaborators.

he difficulties are self-evident—almost overwhelming. It will e much work on the part of wise locksmiths. But compara- anatomy holds the key which fits the tumblers in some of Karnosh's locks.

t is to be expected that Dr. Karnosh's fine paper will stimu- progress. It will mark the year 1951 as initiating an advance our knowledge of the anatomy, physiology, and pathology the emotions.

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CK OF STERILITY OF EYE MEDICAMENTS

the Editor:—There is no specific governmental regulation icerning the sterility of eye medicaments. Neither of the cial compendia regulating the practice of pharmacy mentions subject. As a result, even large pharmaceutical companies, iplying widely used and valuable drugs, dispensed on prescrip- n in their original containers, are not required to adhere to official standard procedure to insure sterility. If an indi- ual retail pharmacist prepares a contaminated solution, since drug is generally used by the patient immediately after prepa- ion, the concentration of organisms is low and may not cause ection. Even if an infection does occur, the incident, while fortunate, is limited to the one patient and generally is traced ickly to its source. However, when a large manufacturer re- ses an infected batch of a compound, which may number ousands of units, the situation may become disastrous before shipment is recalled. During the long time interval between nufacture of the drug and the final harrowing realization of ophthalmologist that the eye medicament he prescribed is cause of a serious secondary eye infection in his patient, iny other contaminated bottles, which by that time may be ided with organisms, have been prescribed and dispensed with nfidence.

Within the past three years, on at least three occasions, widely d eye drops were withdrawn from the market because of ntamination. In two of these instances sulfonamide drugs used treat infections were found to be grossly infected with patho- nic organisms. Recently, one brand of ophthalmic cortisone s been found to contain Pseudomonas aeruginosa (Bacillus ocyaneus). The corneal ulcer resulting from pyocyaneus in- tion is perhaps the most serious one encountered in practice; en if the eye is saved serious loss of vision may occur.

There are probably other instances of contamination of com- rcially prepared eye medicaments that are never publicized. The importance of preparing sterile ophthalmic solutions, using the same rigid technique as for parenteral solutions, has been recognized in many European countries. Both the British Codex and the British Pharmacopeia specifically require that eye solutions be made and dispensed under sterile precautions. This applies to local pharmacists as well as large manufacturers of pharmaceuticals.

It would seem only reasonable, therefore, to expect in the United States specific regulations to insure the sterility of commercially prepared ophthalmic medicaments. The companies making them have the facilities to do so.

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INSECTICIDE STORAGE IN ADIPOSE TISSUE

To the Editor:—In the editorial "Insecticide Storage in Adipose Tissue" published in THE JOURNAL (145:735 [March 10] 1951), there are two points to which I would like to call your attention.

The statement is made: "Dichlorodiphenyldichloroethane, another analog, is stored in body fat to an even greater extent than dichlorodiphenyltrichloroethane,[9] but its chronic effect is only half that of dichlorodiphenyltrichloroethane."

In supporting reference 9 of the editorial, it is not stated that dichlorodiphenyldichloroethane is stored to a greater extent than dichlorodiphenyltrichloroethane, the only statement bearing on dichlorodiphenyldichloroethane storage reading: "DDD also accumulated in fatty tissues." On the basis of our own studies (*Proc. Soc. Exper. Biol. & Med.* 72:357, 1949) and those of Laug, Nelson, Fitzhugh, and Kunze (*J. Pharmacol. & Exper. Therap.* 98:268, 1950), both of these compounds are stored in fat to a similar degree, with the difference that dichlorodiphenyldichloroethane (DDD) is more rapidly eliminated from the fat than dichlorodiphenyltrichloroethane (DDT) on deletion of these materials from the experimental diet (unpublished data).

In our experience with the relative chronic toxicity of the two insecticides, we have found (*Indust. Med.* 17:477, 1948) that in feeding experiments on rats DDD is about one-third as toxic as DDT.

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PNEUMOPERITONEUM

TO THE EDITOR:—In the Oct. 6, 1951, issue of THE JOURNAL (page 568), Hollander reports three cases of air embolism as a complication of pneumoperitoneum. In two patients the injection of air was made into the right upper quadrant of the abdomen. In the other case it is stated only that the needle was introduced into "the peritoneal cavity."

This is to report two additional instances of proved air embolism due to pneumoperitoneum occurring in the course of treatment for pulmonary tuberculosis. In both patients the injection was made into the right upper quadrant. There was one fatality. Autopsy revealed air in the right auricle and right ventricle with scratch and puncture marks on the inferior surface of the liver. The other patient recovered completely from a sudden episode of hemiplegia and collapse, which occurred during the pneumoperitoneum injection. Air was aspirated from the right ventricle during the period of collapse.

It is felt that the right upper quadrant of the abdomen is the one area where pneumoperitoneum injection is most hazardous. Presumably, this is due to the possibility of introducing air directly into the liver. Since changing to an injection site 2 cm. to the left and 2 cm. inferior to the umbilicus, there have been no complications in several thousand pneumoperitoneum treatments at this institution.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Evidence: Misleading Statements in Dentifrice Advertising.—This was a petition to review an order of the Federal Trade Commission. The order forbade, as misleading and likely to deceive the general public, certain advertising by the petitioner in regard to his toothpaste. The case was heard in the United States Court of Appeals, fourth circuit.

The petitioner represented in advertisements (1) that, according to a national survey conducted in 1940 among thousands of dentists, twice as many dentists personally used Ipana toothpaste as any other dentifrice and (2) that more dentists recommend Ipana for their patients' daily use than the next two dentifrices combined. These advertisements, according to the evidence, were based upon the answers to a questionnaire sent by the petitioner in 1940 "to each of 10,000 dentists out of 66,000 in the United States picked at random from the subscribers to two dental magazines." The questionnaires asked: (1) What dentifrice do you personally use most often? (2) What dentifrice do you most often recommend to your patients? In reply 1,983 questionnaires were received which contained 2,467 replies to the first and 2,364 replies to the second question. The replies exceeded the questionnaires in number because some dentists named more than one product in their answers. Of the 2,467 replies to the first question, 621 dentists replied that they used Ipana most often, whereas the four nearest competing products were preferred by 258, 189, 144 and 128 dentists respectively. In answer to the second question, 461 dentists indicated that they most often recommended Ipana to their patients while the four nearest competing products were preferred by 195, 125, 106 and 94 dentists respectively. Of the 461 dentists who recommended Ipana to their patients, 413 used it themselves and 48 did not use it. Other surveys conducted in 1941 and 1944 revealed substantially similar situations. Based upon the results of the survey, the petitioner published advertisements from which the casual reader would reasonably infer that careful inquiry amongst members of the dentist profession had disclosed that a large majority of the dentists in this country not only used Ipana for themselves but recommended it to their patients.

We are of the opinion, said the court, that the sweeping statements made in the petitioner's advertisements were not justified by the answers to the questionnaire and that in consequence the advertisements were misleading and likely to deceive the general public. Certainly the average reader would not infer that the "positive proof" in the hands of the petitioner disclosed that personal preference of only 621 dentists and the customary recommendation on toothpaste to patients by only 461 dentists out of the 66,000 dentists in the United States, or that less than 20% of those who had been questioned had taken the trouble to reply, so that the use and practice of the remaining 80% were unknown. It may well be, the court continued, that an accurate estimate of public opinion or practice can be obtained by a sampling process or survey, but the record is devoid of information on this subject and in the absence of the proof of the scientific principles, if any, which underlie the practice, we must rely upon the impression which the advertisements would be likely to make upon the mind of a man of ordinary intelligence. This is not to express the opinion, concluded the court, that all advertisements based upon surveys must be barred, but merely that the information in the possession of the manufacturer in this case was insufficient to support its advertisements.

The Commission's order to which the petitioner takes exception also contained findings in respect to advertisements which represented to the public that the modern American diet consists of such soft, well-cooked foods that the gums do not get the exercise and stimulation which they need, and that massage with Ipana will provide such exercise and stimulation, and will make the gums firm and healthy, guard against "Pink Tooth Brush," a bleeding of the gums sometimes due to disease, and prevent gum trouble generally. The Commission's order was based upon ings that the preponderant weight of qualified dental established the following facts: It is immaterial to the hea the gums whether the diet of a person is *soft or coarse,* and modern American diet provides sufficient *gum stimulation.* T term "massage," as used by dentists, means a careful dow stroking or squeezing pressure applied to a quarter inch of gum margin and teeth. The term "massage," as used in the ma facturer's advertisements, means to the general public a hori*tal, vertical or rotary scrubbing* of the teeth and the gums the brush, or a similar rubbing with the finger. Such uninstru *massage, either with or without* Ipana or any other toothpa *does not stimulate* circulation in the gums, impart firm *thereto,* or *prevent* gum trouble in general or pink tooth brus particular. Even carefully instructed and properly perform *massage is not needed in* a mouth free from disease, and a l man is unable to ascertain whether or not he is in need of m *sage. Ipana* toothpaste is a cleansing agent *only,* without th peutic value, and possesses prophylactic value only insofar a cleanses.

The petitioner contends that these findings were not suppo by substantial *evidence insofar* as they state that the use of Ip in connection with massage has no beneficial effect. The t *mony* in support of the findings was given by four expert den who were *distinguished in* their profession and had publis numerous articles in leading dental and medical journals. Tw them had published textbooks on dentistry. In opposition petitioner *produced one witness* who had been educated in m cine, *had been a medical* director in industry and in the a and was employed by the petitioner at the time of the trial. *testimony differed in material points* from that of the Com sion's experts. In our opinion, said the court, the Commission justified in giving preference to the *testimony* of the experts supported the allegations of the complaint and who, so far a *evidence shows,* were the persons best *qualified in* the fie form a trustworthy judgment upon the matters under inve tion. *Opinion evidence based on the general medical and* pha cological knowledge of qualified experts has often been he constitute substantial evidence, even if the experts have h personal experience with the product, and this has been even where witnesses who had personally observed the effe the product testified to the contrary. Accordingly the ord the Federal Trade Commission forbidding the use of the a tisements in question was affirmed.—*Bristol-Myers Co.* v. *eral Trade Commission,* 185 F. (2d) 58 (1950).

MEDICAL MOTION PICTURE

NEW FILM ADDED TO A. M. A. LIBRARY

How to Catch a Cold: 16 mm., color, sound, showing time 10 mi Produced in 1951 by Walt Disney Productions, Hollywood, for national Cellucotton Products Co. Procurable on loan (service char from Committee on Medical Motion Pictures, American *Medical A ation, 535 North Dearborn St., Chicago 10.*

The theme of this animated motion picture cartoon is it takes common sense to fight the common cold. Two humo creations of Walt Disney Studios, Common Man and Com Sense, combine to illustrate the scientific do's and don't's of prevention. They show how to catch a cold, how colds are sp how a day or so in bed can help protect a family, office, sc or an entire community and that a so-called "simple" cold actually be the first symptom of a more serious illness. illustration and discussion of the contagiousness of colds is *cially well done.* The entire presentation is done well en so that it could be used alone. However, it will provid excellent basis for further discussion by a *physician or he* educator on *the theme of cold prevention.*

The appeal of this film is universal. It is simple *enoug* be used in the elementary *grades* and yet will hold the atten of an audience of adults. The photography, animation, narration are excellent.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Indust. Hyg. & Occup. Med., Chicago

4:193-296 (Sept.) 1951

Methyl Bromide Fumigation and Control in Date-Packing Industry. F. R. Ingram.—p. 193.
Arsenic and Cancer: Observations in Metallurgical Industry. L. S. Snegireff and O. M. Lombard.—p. 199.
Effect of Bituminous Coal Dust and Smoke on Lungs—Animal Experiments: I. Effects on Susceptibility to Pneumonia. F. J. Vintinner and A. M. Baetjer.—p. 206.
Effect of Aluminum Dust on Susceptibility to Lobar Pneumonia—Animal Experiments. F. J. Vintinner.—p. 217.
*Etiologic Factors in Bronchiogenic Carcinoma, with Special Reference to Industrial Exposures: Reports of 857 Proved Cases. E. L. Wynder and E. A. Graham.—p. 221.
Evaluation and Significance of Physical Fitness for Moderate Work: Study of Patients with Cardiovascular or Pulmonary Diseases. R. A. Bruce, F. W. Lovejoy Jr., P. N. G. Yu and M. E. McDowell.—p. 236.
*Beryllium Excretion in Humans. F. W. Klemperer, A. P. Martin and J. Van Riper.—p. 251.
Clinical Observations on Toxicology of Boron Hydrides. H. M. Rozendaal.—p. 257.
Toxicology of Two Butoxypolypropylene Glycol Fly Repellents. C. P. Carpenter, F. H. Critchfield, J. H. Nair III. and C. B. Shaffer. —p. 261.
Coal Workers' Pneumoconiosis: Pathological and Etiological Considerations. A. G. Heppleston.—p. 270.

Etiological Factors in Bronchiogenic Carcinoma.—Results are reported of a survey of 857 patients, 803 men and 54 women, with proved bronchiogenic carcinoma. Of the men, 760 had epidermoid, undifferentiated, or unclassified bronchiogenic carcinoma and 43 had adenocarcinoma. Of the women, 32 had epidermoid or undifferentiated carcinoma and 22 had adenocarcinoma. One of the several factors that may cause primary carcinoma of the lungs is intrinsic, since not every person exposed to carcinogenic substances contracts cancer of the lungs. The nature of this intrinsic factor remains unknown for the present. Data collected through personal interviews of the authors' patients suggest that exogenous factors seem to be of equal importance in the development of lung cancer. Some occupations, which are associated oftener than expected with the lung cancer group, seem to play a part in this regard, though decisive statistical evidence is lacking. Workers in such occupations include metal workers and painters, and workers exposed to excessive fumes of oils, gasoline varnish, and wood dust. City dusts and fumes cannot account for the increased incidence of lung cancer. The authors believe that tobacco smoking is the most important factor to explain the universal and predominantly male increase in lung cancer incidence. Of the 760 men with epidermoid, undifferentiated, or unclassified bronchiogenic carcinoma, 9.7% were moderately heavy smokers and 86.2% were heavy, excessive, or chain smokers, while only 1.4% were nonsmokers and 2.6% were light smokers. The greater the amount of tobacco smoked, the greater seems the risk of primary carcinoma of the lung. The data presented in this survey as well as in other recent large-scale investigations should lead investigators to concentrate their efforts in an attempt to identify and possibly isolate carcinogenic agents in tobacco smoke and in certain industrial subtances, with the hope that by their removal, or at least reduction, the incidence of primary cancer of the lungs may be decreased.

Beryllium Excretion in Humans.—The amounts of beryllium excreted in the urine by 20 patients with chronic pulmonary granulomatosis, by 35 persons not, so far as known, exposed to beryllium, and by 15 healthy workers in the beryllium industry were determined in 24 hour collections. Beryllium was not detected in the urine of any of the persons who had not had occupational exposure to beryllium. Of the 20 patients with chronic pulmonary granulomatosis, only 12 excreted detectable amounts of beryllium. Their daily excretion was found to be nearly constant during the experimental period. Beryllium was detected in the urine up to 10 years after cessation of exposure. In the urine of the healthy beryllium workers the amount of beryllium was comparable to that observed in the urine of patients with pulmonary granulomatosis who had worked in similar industries. The determination of beryllium in the urine, therefore, is of little value for the diagnosis of chronic pulmonary disease, because the excretion of beryllium indicates only past exposure. The excretion of beryllium appears to depend on the solubility of the inhaled material, since the highest excretions were observed in persons exposed to soluble beryllium.

A.M.A. Arch. Internal Medicine, Chicago

88:271-418 (Sept.) 1951

*Effect of Large Doses of Aureomycin on Human Liver. M. H. Lepper, C. K. Wolfe, H. J. Zimmerman and others.—p. 271.
Effect of Large Doses of Aureomycin, Terramycin, and Chloramphenicol on Livers of Mice and Dogs. M. H. Lepper, H. J. Zimmerman, G. Carroll and others.—p. 284.
Clinical Evaluation of 4-Hydroxycoumarin Anticoagulant No. 63. R. Rotter and O. O. Meyer.—p. 296.
*Effect of Corticotrophin and Cortisone on Blood in Various Disorders in Man. M. M. Wintrobe, G. E. Cartwright, J. G. Palmer and others. —p. 310.
Prerenal Proteinuria: I. Particle Size. T. Addis, E. Barrett, L. G. Poo and H. Ureen.—p. 337.
Id.: II. Observations on Urinary Protein. E. C. Persike.—p. 346.
Id.: III. Electrophoretic Studies. E. Jameson and T. Addis.—p. 350.
Use of Mixtures of NPH and Unmodified Insulins. J. W. Stephens, R. M. Donaldson Jr. and A. Marble.—p. 356.
Pneumatosis Cystoides Intestinalis. S. Schorr, T. D. Ullmann and S. Laufer.—p. 362.
Nonclostridial Gas Infection in the Diabetic: Review of Literature and Report of Three Cases. M. Spring and S. Kahn.—p. 373.
Clinical Significance of Pleuropericardial Cyst. K. M. Lippert, H. Potozky and I. K. Furman.—p. 378.
Metabolic Problems Arising in Management of Congestive Heart Failure. G. E. Bergner, J. H. Hutchinson, J. W. Koehler and E. L. Czebrinski. —p. 387.

Effect of Aureomycin on the Liver.—During the past 30 months the authors of this report treated 61 adults and 42 children with aureomycin intravenously. Of these, 14 also received aureomycin orally. In the latter group, after therapy, seven displayed signs of liver dysfunction and liver enlargement. Four had clinical jaundice, and hyperbilirubinemia was present in an additional patient. Pathological changes were found in the liver of five patients who died and on biopsy in a sixth patient. Two of the subjects who were given aureomycin intravenously were studied by means of serial liver-function tests, which showed diminution of liver function. The pathological changes in the liver appeared to be reversible when the condition was recognized early and aureomycin therapy was discontinued. Intravenous doses of aureomycin totaling less than 2 gm. a day in adults were not accompanied by evidence of liver dysfunction or injury, nor have these conditions been observed in more than 1,300 patients to whom aureomycin was given orally. The doses of aureomycin that caused these changes in the liver are now considered to be excessive. Aureomycin should not be given intravenously in large doses. It is suggested that, when aureomycin is administered orally in addition, no more than 1 gm. of aureomycin a day should be given by the intravenous route. When adjuvant oral therapy is not employed, 2 gm. of aureomycin a day given intravenously would seem to be the maximum dose. For children a maximum intravenous dose of 40 mg. per kilogram of body weight is recommended.

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An asterisk (*) before a title indicates that the article is abstracted.

Corticotropin and Cortisone in Blood Disorders.—Corticotropin (ACTH) or cortisone was administered to 40 patients with a variety of disorders affecting the hemopoietic system. Improvement in the clinical condition, as well as in the hematological picture, was noted in 5 of 11 patients with acute leukemia, in 3 of 4 patients with acquired hemolytic anemia, in 2 of 4 patients with disseminated lupus erythematosus, in all 3 patients with rheumatoid arthritis, and in 1 patient with idiopathic thrombopenic purpura. In addition, one patient each with multiple myeloma, terminal lymphosarcoma, chronic lymphocytic leukemia, and reticulum-cell sarcoma involving the bone marrow showed diminution in the number of abnormal cells in the marrow and regeneration of erythroid cells, although there was no clinical improvement. One patient, who had myelophthisic anemia, showed a decided increase in the nucleated red blood cells in the peripheral blood. One patient, with advanced Hodgkin's disease, had symptomatic improvement and reduction in fever but no hematological change. Slight reticulocytosis with no other effects was noted in two patients with pernicious anemia in relapse, and there was a decrease of purpura in two patients with aplastic anemia. No effects, other than adrenal-cortical hyperfunction, were noted in patients with chronic lymphatic leukemia, periarteritis nodosa, myelofibrosis, portal cirrhosis, chronic idiopathic neutropenia, and anemia associated with chronic pyelonephritis. The mode of action of these hormones may be related to the effects of adrenal-cortical hormones in producing lymphocytolysis, increased hemopoiesis, and alterations in immune reactions. These hormones may be of much value in patients with acquired hemolytic anemia and idiopathic thrombopenic purpura.

A.M.A. Arch. Surgery, Chicago

63:279-412 (Sept.) 1951

The Surgical Resident: Presidential Address. W. G. Maddock.—p. 282.
Plastic Sponge Which Acts as Framework for Living Tissue: Experimental Studies and Preliminary Report of Use to Reinforced Abdominal Aneurysms. J. H. Grindlay and J. M. Waugh.—p. 288.
Experimental Gastrojejunal Ulcers Due to Antrum Hyperfunction. L. R. Dragstedt, H. A. Oberhelman Jr. and C. A. Smith.—p. 298.
*Evaluation of Five Years' Experience with Vagotomy in Treatment of Chronic Peptic Ulcer. E. M. Miller, A. Knight and J. H. Olwin. —p. 303.
Diagnosis and Treatment of Superior-Vena-Cava Obstruction. K. P. Klassen, N. C. Andrews and G. M. Curtis.—p. 311.
Pulmonary Resections for Metastatic Lesions. J. L. Ehrenhaft.—p. 326.
*Coarctation of Aorta: Study of 70 Cases in Which Surgical Exploration Was Performed. O. T. Clagett and R. W. Jampolis.—p. 337.
*Commissurotomy in Mitral Stenosis. C. R. Lam.—p. 349.
Flexor Tendon Grafting to Hand. H. S. Allen.—p. 362.
Total Colectomy for Ulcerative Colitis. C. Gardner and G. G. Miller. —p. 370.
Venous Shunts in Portal Hypertension. O. C. Julian and W. S. Dye. —p. 373.
Ligation of Hepatic and Splenic Arteries in Treatment of Portal Hypertension: Ligation in Atrophic Cirrhosis of Liver. J. K. Berman, H. Koenig and L. P. Muller.—p. 379.
Clostridial Infection as Cause of Death After Ligation of Hepatic Artery. A. Y. S. Chau, V. C. Goldbloom and F. N. Gurd.—p. 390.
Parenteral and Intestinal Absorption of Antibiotics in Traumatic Shock. W. A. Altemeier, R. L. Coith and W. R. Culbertson.—p. 403.
Late Results of Surgery in Perforated Duodenal Ulcer. E. B. Tovee. —p. 408.

Five Years' Experience with Vagotomy.—In February, 1948, Miller and associates reported on a series of 101 patients who had been subjected to vagotomy. Three years later, the authors again made a follow-up study on this same group of patients and on 13 additional patients who had been subjected to vagotomy since then. Of the total of 114 patients, 14 were lost from observation, in the rest the results of vagotomy were investigated. The authors feel that the evaluation of any surgical procedure is not easy, because some of the favorable or unfavorable complications may be attributable to procedures done at the same time, such as gastroenterostomy in conjunction with vagotomy. The wide variety of minor symptoms that temporarily follow resections of the vagus nerves may at times be due to other lesions in the alimentary or biliary tracts. While there is ample proof in this series that vagotomy is sufficient in itself to provide a permanently good result, it is believed that the combination of vagotomy with gastroenterostomy has a definite place in selected cases. Vagotomy is by no means to be considered a substitute for gastric resection, but it should be considered as an alternate method of treatment, carrying with it a lower mortality and offering comparable results. Vagotomy is not considered advisable in patients with chronic gastric ulcer unless the patient is in too poor condition for resection and the lesion is lying high in the fundus or cardia and has been proved to be benign by biopsy. Vagotomy is indicated in treatment of stoma ulcers that have followed either gastroenterostomy or gastric resection in which obstruction is not a factor. It is to be especially recommended in instances of extreme ulcerative change in the region of the first part of the duodenum, in which a closure of the duodenum would be unusually difficult or hazardous and, therefore, resection considered too great a risk.

Surgical Treatment in Coarctation of Aorta.—This report reviews observations on 70 patients in whom Clagett performed an operation for coarctation of the aorta. The patients ranged in age from 7 to 50 years. The ages between 15 and 20 years are regarded by the author as the optimal ages for this operation. Unlike patients with some other types of congenital heart disease, persons born with coarctation of the aorta appear for the most part to be normal and healthy. Of the patients reported here, 42 were entirely or largely asymptomatic. Among those presenting symptoms, easy fatigability and dyspnea on exertion were commonest. Headache, aching or tiredness in the calves, and palpitation were the next commonest symptoms followed in close order by cold feet, precordial distress, dizziness, tachycardia, and blurred vision. Coarctation of the aorta should be thought of in young persons with hypertension. Angiocardiography is of slight value in the diagnosis and is unnecessary. Patients with coarctation of the aorta should not be denied the benefits of surgical treatment because of advanced age, my cardial conduction defects, previous cerebrovascular acciden or previous congestive failure. Resection of the strictured se ment of aorta with end-to-end anastomosis is the treatment choice. Of the 70 patients on whom surgical exploration f coarctation of the aorta was performed, 8 were found to ha inoperable lesions at the time of exploration, an inoperabil rate of 11.4%. This rate compares favorably with that of Gr (9.2%). There were five surgical deaths among the 70 patie (7.1%), but in the last 55 cases there were none.

Commissurotomy in Mitral Stenosis.—After mentioning t different techniques that have been employed for comm surotomy, Lam says that in the 19 patients operated on at t Henry Ford Hospital in Detroit, Bailey's method was used. T technique is described. The patients, ranging in age from 20 53, all had disabling symptoms of mitral heart disease, inclu ing shortness of breath, orthopnea, and inability to work. Se enteen had had attacks of pulmonary edema, and all exce one of these had had hemoptysis. Eight had auricular fibrillati at the time of operation. All had the typical diastolic rumble the apex, and nine had a systolic murmur at the apex. Fluc oscopic examination in most instances showed a picture typic of mitral stenosis, with enlargement of the pulmonary con left auricle, and right ventricle. Three of the deaths occurr among the five patients with evidence of hypertrophy of the le ventricle. In many of the patients the pulmonary artery pre sure was determined by cardiac catheterization. The mean pre sures varied from 54 to 124 cm. of water. There were fi deaths, and two of the surviving patients had unsatisfactory r sults. A review of the circumstances suggests that technical erro or poor selection of the candidates for commissurotomy we largely responsible for the unsatisfactory results. It is felt th the patient with terminal failure and the patient with hypert sion and mitral regurgitation should not have been operated o and that the patient with pericarditis should have been su jected to decortication. The authors feel that with better selectio of cases commissurotomy by the auricular approach should b accompanied by a low mortality rate and a high percentage c improvement in persons disabled by mitral stenosis.

American Journal of Ophthalmology, Chicago

34:1081-1216 (Aug.) 1951

opical Use of Chloramphenicol in External Ocular Infections. W. Roberts.—p. 1081.
ffect of Glare on Accommodation Near Point. J. H. Peterson and E. Simonson.—p. 1088.
ccommodative Convergence. E. F. Tait.—p. 1093.
ound-Pupil Cataract Extraction: Comparative Analysis. L. F. Carter. —p. 1108.
urtscher's Disease: Report of Two Cases. W. C. Anderson.—p. 1114.
undus Changes in Juvenile Diabetics. L. T. Post and A. W. Stickle Jr. —p. 1119.
oeck's Sarcoid: Review and Report of Case Demonstrating Multiple Iris Nodules, Acute Secondary Glaucoma, and Keratopathy. H. S. Friedman.—p. 1126.
ew Surgical Treatment for Postoperative Cataract. T. Sato.—p. 1136.
hanges in Intraocular Pressure in Normal and Glaucomatous Eyes Following Furmethide. R. C. Goodwin.—p. 1139.
yperphoria Induced by Trial Lenses. R. J. Schillinger.—p. 1150.
alignant Lymphoma of Uveal Tract. E. L. Cooper and J. L. Riker. —p. 1153.
tudy of Electrical Resistance Properties of Corneal Epithelium. H. M. Katzin.—p. 1159.

undus Changes in Young Diabetics.—Post and Stickle present e results of studies made on 59 young diabetics, in whom abetes was diagnosed before the age of 15. It was found that e control of the diabetes as well as the duration of the disease an important factor in the development of retinopathy, kidney mage, and poor general physical condition. The patient who as able to maintain good control showed less pathological ogress than the one with poor control. This should serve as a imulus to the diabetic patient and the physician who is caring r him to attempt to keep blood chemistry normal and to treat oth minor and major complications early and thoroughly. egenerative changes are commonest in the vascular system of e retina. Capillary aneurysms and small round hemorrhages, sually found in the area between the superior and inferior mporal vessels, were the first changes seen. The very early sions were visible only on careful examination.

merican Journal of Psychiatry, New York

108:81-160 (Aug.) 1951

he Assessment of Mental Health. J. W. Eaton.—p. 81.
sychological Tests in Selection and Placement of Psychiatric Aides. E. C. Yerbury, J. D. Holzberg and S. L. Alessi.—p. 91.
onversion of Passivity into Normal Self-Assertion. D. E. Cameron. —p. 98.
ole of General Hospital in Care of the Mentally Ill. R. F. Gayle Jr. —p. 103.
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elaxation Methods in U. S. Navy Air Schools. W. Neufeld.—p. 132.
iagnosing Mental Deficiency in Psychotics. L. Drubin and M. Singer. —p. 138.

elaxation Methods in Navy Air Schools.—In 1943 reports from ight instructors at naval training stations indicated that many adets seemed fatigued, restless, sleepless, and apprehensive. uestionnaires filled out by 3,181 cadets at five preflight schools ndicated nervous complaints in most of the cadets. States of xcessive tension while learning to fly came to be recognized s a menace, and reports from the combat zones indicated that igh tension seemed partly responsible for loss of pilots and lanes. The relations of restlessness, insomnia, fatigue, appre-ension, and fear to states of neuromuscular tension had been vestigated by Jacobson, who had shown that these symptoms ay be diminished by methods of progressive relaxation, which re adaptable for group teaching. When a training program for e relief of nervous symptoms and fatigue was introduced, five fficers were given a course of instruction in progressive relaxa-on by Jacobson. These officers subsequently instructed other fficers, and those in turn instructed the cadets in classes num-ering up to 300. The course in relaxation for cadets was of 10 eeks' duration, consisting of three periods per week of one alf hour each. This was a greatly abbreviated course, and, since e cadets generally did not practice with daily regularity as Jacobson prescribed, the results obtained must be regarded as having been obtained under a very limited application of the method. Tests at the preflight school in Iowa City on 983 cadets who had received relaxation training indicated approximately 19% reduction of strains, sprains, fractures, and other minor injuries in the test group as compared with a control group. Tests on these same groups revealed a 38% reduction of days lost from injuries. In three preflight schools data were secured concerning the rest in bed of 140 cadets who had received relaxation training as compared with 190 cadets without such training. There was a marked decrease in restlessness and there was less talking or mumbling and probably less dreaming. The cadets who had received relaxation training went to sleep more quickly and had less insomnia.

Angiology, Baltimore

2:227-310 (Aug.) 1951

Role of Sympathetic Nervous System in Essential Hypertension in Man. R. H. Smithwick.—p. 227.
Influence of Peripheral Arterial Disease on Initial Changes in Digital Volume During Reactive Hyperemia. T. Winsor.—p. 243.
*Periarteritis Nodosa Following Thiouracil Therapy of Hyperthyroidism: Resultant Hypertension Benefited by Sympathectomy: Report of Case. D. R. Barnum, G. de Takats and R. E. Dolkart.—p. 256.
Studies in Vascular Repair: VI. Further Observations on Growth of Anastomoses and Free Vascular Transplants in Growing Animals. H. B. Shumacker Jr., L. W. Freeman, L. M. Hutchings and L. Radigan.—p. 263.
Studies in Experimental Frostbite: VII. Inquiry into Mode of Action of Rapid Thawing in Immediate Treatment. R. E. Lempke and H. B. Shumacker Jr.—p. 270.
Case Report of Cold Sensitivity with Cold Hemagglutinins. D. W. Kramer and P. K. Perilstein.—p. 283.
Quantitative Measurements of Responses to Vaso-Dilators: Critical Study. O. Brandman, M. Waid and W. Redisch.—p. 293.
Thrombo-Phlebitis of Jugular Vein. M. H. Morris.—p. 299.
Effect of Physiologic Variables on Diameter of Small and Large Arterial Vessels. J. Flasher, D. R. Drury and D. Gordon.—p. 302.

Periarteritis Nodosa Following Thiouracil Therapy.—The occurrence of a diffuse sensitivity reaction to medication, most closely resembling periarteritis nodosa with associated Raynaud's phenomenon, is reported in a woman aged 37 with thyrotoxicosis, who had been given two courses of iodine, 0.3 gm. of thiouracil daily for nine weeks, and, after an interval of several months, again iodine and thiouracil for three weeks. Because of low-grade fever, leucocytosis, myalgia, and arthralgia the medication was stopped. Deep cyanosis of parts of all fingers and both palms was present. Both fifth fingers were waxy-white. The feet had patchy cyanosis similar to the hands. There was a small, tender, inflamed nodule on the right patella and a similar nodule directly on the pulsating left dorsalis pedis artery. The blood pressure rose to sustained levels of 170 to 208 mm. of mercury systolic and 118 to 128 mm. of mercury diastolic. This hypertension, as well as other observations in this patient, such as cachexia, fever, weakness, gastrointestinal disturbance, neuritis, myositis, arthritis, tachycardia, renal involvement, anemia, and leucocytosis, were all typical features of periarteritis nodosa. Six months later, her pathological condition had subsided and seemed quiescent, but hypertension persisted and was finally controlled by bilateral dorsolumbar sympathectomy. This would suggest that arterial spasm was a dominant factor in the hypertension, peripheral vasospasm, and peripheral neuropathy. The vascular damage in such cases remains a single insult, which, if not permitted to progress through continuous hypertension, is reversible. The case is unique, because the probability that the periarteritis nodosa was due to thiouracil, or less likely to the concomitant iodine, as a sensitizing agent cannot be discarded. Both drugs were used in repeated courses for treatment of hyperthyroidism. The previously recognized hazard of repeated courses of drugs to which reactions may occur is reemphasized.

Arizona Medicine, Phoenix

8:1-80 (Aug.) 1951

Medical Fungi: Infections and Allergies That They Provoke. E. L. Keeney.—p. 19.
Clinical Application of Cortisone and ACTH in Arthritis and Related Conditions: Methods and Problems: Part I. Methods and Clinical Observations. O. Steinbrocker, M. E. Ehrlich, M. Silver and others. —p. 33.

Arkansas Medical Society Journal, Fort Smith

48:69-94 (Aug.) 1951

Diagnostic Criteria in Arteriosclerotic Heart Disease. O. L. Hanson and B. B. Wells.—p. 69.

Brief Summary of More Recent Applications of Radioisotopes in Clinical Medicine. I. Meschan.—p. 73.

48:95-110 (Sept.) 1951

Otolaryngology, Yesterday, Today, and Tomorrow. P. L. Mahoney.—p. 95.

Chronic Infections of Middle Ear. R. H. Atkinson.—p. 98.

Surgical and Non-Surgical Management of Pre-School Child with Deafness. E. P. Fowler Jr.—p. 101.

Bulletin of Johns Hopkins Hospital, Baltimore

89:81-152 (Aug.) 1951

*Studies on Resistance of Staphylococci to Penicillin: Production of Penicillinase and Its Inhibition by Action of Aureomycin. C. A. Chandler, V. Z. Davidson, P. H. Long and J. J. Monnier.—p. 81.

Thyroid Hormone: Certain Aspects of Its Elaboration in the Body, Significance of Its Structure, and Its Action on End Organs. J. H. Means.—p. 90.

Use of Hormones, Drugs and Radiations in Management of Thyroid Diseases. J. H. Means.—p. 106.

Blood Volume in Congenital Cyanotic Heart Disease: Simultaneous Measurements with Evans Blue and Radioactive Phosphorus. H. W. Scott Jr., S. R. Elliott II and R. C. Clay.—p. 121.

Inadvertent Gastro-Ileostomy: Successful Operative Correction Six Years After Gastrectomy. D. A. Cooley and R. C. Hartmann.—p. 133.

Resistance of Staphylococci to Penicillin.—Chandler and associates attempted to determine the proportion of resistant staphylococci present in a variety of infectious processes, to compare this with the proportion of penicillin-resistant staphylococci isolated from the noses and throats of healthy carriers, and to test both resistant and susceptible strains for the production of penicillinase in order to confirm the observation that there is a high degree of correlation between resistance and the production of penicillinase. Of the 50 pathogenic strains of staphylococci studied, 56% of the strains of Staphylococcus aureus and 38% of the strains of Staph. albus were resistant to more than 1 γ penicillin per cubic centimeter. Of the combined total, 52% f the 50 strains were resistant to more than 1 γ of penicillin per cubic centimeter. Of the 25 strains from carriers, only 18% of the strains of Staph. aureus and 14% of the strains of Staph. albus were resistant to more than 1 γ of penicillin. Of the combined total, 16% of the 25 strains were resistant to more than 1 γ of penicillin. All but one of the resistant strains produced penicillinase. None of the sensitive strains produced penicillinase. Exposure to aureomycin brought about a loss in the capacity to produce penicillinase, and this loss appeared to be irreversible. The clinical implications of these observations are that when, in the course of an infection that is being treated with penicillin, the infecting organism is discovered to be one that produces penicillinase, the substitution of another antibiotic to which the organism is sensitive is not only indicated but may at some later date allow the reintroduction of penicillin, if the organism loses its capacity to produce penicillinase. In the case of staphylococcic infections, the substitution of aureomycin for penicillin would seem to constitute a logical procedure in the light of the observations made in this study.

89:153-262 (Sept.) 1951

Comparative Study of Rate of Atrophy of Skeletal Muscle Following Anterior Ramisection and Acute Anterior Poliomyelitis in Rhesus Monkey: With Note on Weight of Sartorius Muscle in Normal Animal. R. E. M. Bowden.—p. 153.

Cardiovascular Response of Normal Young Adults to Exercise as Determined by Double Master Two-Step Test. C. B. Thomas.—p. 181.

Effect of Choline Deficiency on Development of Tumors Produced by Butter Yellow. J. J. Buckley, S. M. Buckley and A. E. Snipes.—p. 218.

Physiological Studies in Congenital Heart Disease: XII. Circulatory Dynamics in Patients with Tricuspid Atresia. S. G. Blount Jr., C. Ferencz, A. Friedlich and others.—p. 235.

Role of Surface and of Calcium in Coagulation of Globulin Fraction of Platelet-Deficient Plasma. O. D. Ratnoff and C. L. Conley.—p. 245.

Gastroenterology, Baltimore

18:503-670 (Aug.) 1951

Effect of Ganglion-Blocking Methonium Salts on Gastric Secretio Motility. A. W. Kay and A. N. Smith.—p. 503.

Abnormal Serum Pancreatic Enzyme Values in Liver Disease. A. Cummins and H. L. Bockus.—p. 518.

Chronic Intrahepatic Cholangitis and Effect of Sulfonamides on Its C cal Manifestations. M. Rachmilewitz.—p. 530.

Why Do a Gastric Analysis? I. Theoretical Considerations. J. L. Roth and H. L. Bockus.—p. 546.

Gastrocolostomy: Clinical Observations and Experimental Studies. P. Doolan, L. H. Kyle, W. Hess and E. Phelps.—p. 566.

*Peptic Ulcer of Esophagus. M. H. Redish and B. Kertzner.—p. 57

Fibrosis and Nodular Hyperplasia of Liver (Post-Necrotic Cirrh Clinical and Pathological Study of 9 Cases. R. Yazigi, R. Arr Cruz, S. Silva and M. Ossandon.—p. 587.

*Fatty Liver Following Aureomycin and Terramycin Therapy in Chr Hepatic Disease. V. M. Sborov and D. A. Sutherland.—p. 598.

Oral Procaine Hydrochloride for Relief of Cardiospasm: Prelimi Report. D. C. Balfour Jr. and G. K. Wharton.—p. 606.

Multiple Simultaneous Recording of Gastrointestinal Functions. W. Bachrach, M. Brody and D. R. Drury.—p. 609.

Treatment of Vagotomy-Induced Chronic Pylorospasm in Dogs. W. Deaton Jr. and H. H. Bradshaw.—p. 613.

Studies on Action of Antacids in Human Stomach. F. B. Benjamin A. C. Ivy.—p. 618.

Peptic Ulcer of Esophagus.—There are two schools of thou on the etiology of peptic ulcer of the esophagus. One holds the coexistent short esophagus is congenital in origin and this variation permits a more or less constant exposure to ga secretion with the eventual production of an ulcer. The opp point of view supports the thesis that the ulceration is prin and that the subsequent scarring and longitudinal contrac bring the stomach into a herniated position. Exponents of opinions fail to account for the following factors: the freq finding of hiatal insufficiency with herniation but wit esophageal ulcer; the presence of ectopic foci of gastric mu in the lower third of the esophagus; the high frequency of ciated gastrointestinal lesions, such as gallbladder disease, tric and duodenal ulcers, and duodenal diverticuli; and appearance of the lesion at both extremes of life. The aut present the histories of six patients with peptic ulcer of esophagus who were observed at a Veterans Administration pital in the course of three years. An x-ray treated neoplas tonsil and neck existed in one patient, duodenal ulcer in patients, and cholecystic disease and diverticulosis of the bowel in one patient. Esophageal islands of ectopic ga mucosa were present in all of the patients. The authors feel these associated lesions probably played a part in the pa genesis of peptic ulceration in the esophagus, because mul factors and a combination of circumstances are probably ne sary in the great majority of cases of peptic ulceration in esophagus. Attention is called also to the frequency of obst tion in ulcers of this type, due either to functional spasm scarring. Dilatation should always be tried first, and resec should be considered only if the obstruction cannot be relie

Fatty Liver Following Aureomycin Therapy in Hepatic Disc —In 7 of 16 patients with chronic liver disease treated varying courses of aureomycin, an increase of liver fat was served following therapy. This change was also demonstr in two of three patients treated with terramycin. Associated this, an increase in body weight was noted in a significant n ber of patients. The possibility is considered that these cha are due to a disturbance of cellular metabolism by these stances, or to their effect on the bacterial flora of the colon both. It is also recognized that other mechanisms may responsible.

Illinois Medical Journal, Chicago

100:165-220 (Sept.) 1951

Medical Men—Their Citizenship Responsibility. C. P. White.—p. 1

Unipolar Electrocardiography and General Practitioner (Analysis of Consecutive Electrocardiograms). B. E. Malstrom, W. Johnson E. G. Behrents.—p. 178.

X-Ray Findings in Adult Urological Conditions. P. R. Dirkse.—p.

Corrosive Pyloric Stenosis. R. Gradman, S. T. Gerber and J. Ka —p. 188.

Established Use of Antibiotics. H. F. Dowling.—p. 192.

Lost Art of Diagnosing with Eyes and Ears. W. C. Alvarez.—p. 19

Intramedullary Epidermoid Tumor. M. Tinsley and A. D. Mc —p. 200.

ndiana State Medical Assn. Journal, Indianapolis

44:733-816 (Aug.) 1951

dern Infant Feeding: Simplified Approach. H. D. Lynch and W. D. nively Jr.—p. 749.
stic Disease of Lung: Case Report. P. D. Crimm and F. L. Kiechle. —p. 753.
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iary Tract Surgery in a Small Voluntary Hospital. M. B. Welborn. —p. 758.
loric Stenosis in Identical Twins: Case Report. J. B. Welsh.—p. 762.

44:817-908 (Sept.) 1951

tradural Intraspinal Tumor of Cervicothoracic Region with Features imulating Multiple Sclerosis. W. R. Chambers.—p. 834.
e of Rectal Suppositories in Treatment of Migraine Headache. M. L. ankoff.—p. 836.
poadrenalism in Newborn Infants: Case Report. B. F. Grotts.—p. 839.
ussusception in Adult. S. D. Malouf.—p. 841.
ld Urticaria. H. H. Rodin and S. M. Bluefarb.—p. 846.

poadrenalism in Newborn Infants.—Grotts points out that ants with protracted gastrointestinal disturbances, failure to n weight on adequate caloric intake, a tendency to dehydra- , and an unsatisfactory response to accepted therapeutic asures are frequently regarded and treated as difficult feeding blems. The author feels that hypofunction of the adrenals ht be responsible for these disorders in some cases and that enal replacement therapy could be tried. He presents the case tory of such an infant, who showed great improvement after atment with a synthetic adrenal cortex preparation. According Selye, functional adrenal insufficiency may be a common but ecognized clinical problem.

urnal of Investigative Dermatology, Baltimore

17:1-54 (July) 1951

dium Para-Aminobenzoate Therapy of Eczema-Dermatitis. L. J. A. Loewenthal.—p. 1.
ffects of Topical Cortisone and Chronic Discoid Lupus Erythematosus and Necrobiosis Lipoidica Diabeticorum. B. A. Newman and F. F. Feldman.—p. 3.
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ew Method to Increase Permeability of Hard Keratin Structures. S. Rothman and C. L. Taschdjian.—p. 9.
sal Metabolic Rate in Acne Vulgaris: Analysis of 353 Determinations. S. C. Smith, C. J. Young and D. C. Smith.—p. 13.
rome Ulcers of Skin and Nasal Septum and Their Relation to Patch Testing. W. F. Edmundson.—p. 17.
udies on Arginase Activity of Skin. E. J. Van Scott.—p. 21.
fect of Various Substances on Oxygen Uptake of Microsporum Canis Grown in Submerged Culture. F. M. Melton.—p. 27.
emistry of Human Sebaceous Gland: I. Histochemical Observations. R. R. Suskind.—p. 37.

17:55-124 (Aug.) 1951

fect of Adrenocorticotropic Hormone (ACTH) and Cortisone on Several Varieties of Pemphigus. C. N. Frazier, W. F. Lever, R. W. Leeper and others.—p. 55.
eneralized Erythrodermia Occurring in Case of Psoriasis on Treatment with Adrenocorticotropic Hormone (ACTH). D. Cohen and I. H. Distelheim.—p. 61.
on, Copper and Ash Content of Human Hair of Different Colors. T. F. Dutcher and S. Rothman.—p. 65.
omparison of Direct Action of Estrogen and Adrenal Cortical Extracts on Growth of Hair in Rat. W. L. Whitaker and B. L. Baker.—p. 69.
ater Extractable Constituents of Hair. A. Bolliger.—p. 79.
tudies on Atabrine Dermatitis: I. Long Term Observation of Veterans with Permanent Atrophic Residua of Disease. I. L. Schamberg.—p. 85.
hifting of Cations in Cerebrospinal Fluid as Cause of Pruritus. H. Koenigstein.—p. 99.

ythrodermia Occurring in Psoriasis After Use of Cortico- pin.—The case reported concerned a 12-year-old girl who s first seen by the authors on Nov. 29, 1950, with a history generalized eruption of six weeks' duration. A clinical diag- sis of psoriasis vulgaris was made, and local administration 1% ammoniated mercury ointment was started in an attempt loosen the scales. Treatment with corticotropin (ACTH) s begun Dec. 6, 1950, with a daily dose of 50 mg. accom- nied by 1.5 gm. of potassium chloride. On Jan. 5, 1951, the se of corticotropin was increased to 80 mg. daily. On the day fore, Jan. 4, a diffuse erythema began to develop. At the same ne the psoriatic lesions gradually faded and some scales came f. The erythema became completely generalized within the xt two weeks. Corticotropin was discontinued on Jan. 18. ithin a few days the erythema began to fade, starting first on the lower extremities. At this time a patch test with 2% ammoniated mercury ointment was found to be negative. The authors say that although erythrodermia may develop spontaneously in psoriasis, it is possible that in this case corticotropin was a cause.

Journal of Neurophysiology, Springfield, Ill.

14:339-430 (Sept.) 1951. Partial Index

Propagation of Retinal Induction. K. Motokawa.—p. 339.
Effects Induced in Monosynaptic Reflex Path by Its Activation. J. C. Eccles and W. Rall.—p. 353.
Action Potentials of Cold Fibres and Intracutaneous Temperature Gradient. H. Hensel and Y. Zotterman.—p. 377.
Effects of Adenine Compounds on Electrocortical Activity. F. Robinson and R. A. Hughes.—p. 387.
Nucleus Cervicalis Lateralis: Spino-Cerebellar Relay Nucleus. B. Rexed and A. Brodal.—p. 399.

Journal of Thoracic Surgery, St. Louis

22:109-218 (Aug.) 1951

Bronchography as Aid in Planning Surgical Treatment of Pulmonary Tuberculosis: With Preliminary Note on Pulmonary Angiography. J. Gordon, W. B. Zinn, R. Brook and P. C. Pratt.—p. 109.
Effect of Position and Artificial Ventilation on Excretion of Carbon Dioxide During Thoracic Surgery. H. K. Beecher, T. J. Quinn Jr., J. P. Bunker and G. L. D'Alessandro.—p. 135.
*Mucoid Impaction of Bronchi. R. R. Shaw.—p. 149.
*Treatment of Cardiospasm: Analysis of 12-Year Experience. A. M. Olsen, S. W. Harrington, H. J. Moersch and H. A. Andersen.—p. 164.
Variations in Bronchovascular Patterns of Right Lower Lobe of 50 Lungs. R. M. Ferry Jr. and E. A. Boyden.—p. 188.
Lobectomy for Fungous Abscess of Lung: Effect of Penicillin. C. L. Graves and M. Millman.—p. 202.
Double Aortic Arch. J. F. Nuboer.—p. 208.
X-Ray Therapy in Carcinoma of Esophagus. T. A. Watson and E. M. Brown.—p. 216.

Mucoid Impaction of Bronchi.—The occurrence of mucoid impaction of the bronchi resulting from a localized accumulation of inspissated mucus in the bronchi is reported in 10 patients between the ages of 14 and 57, all of whom had an underlying condition of asthma or chronic obstructive bronchitis. The descriptive term mucoid impaction of the bronchi has been used by the author to designate a distinct clinical entity within the lungs. Its presence causes a febrile episode. The associated cough is not severe. It may be a dry cough or productive of small amounts of mucopurulent secretion. General lassitude and a slight localized pleuritic pain may be present. Hemoptyses occurred in three of the author's patients. Typically mucoid impaction occurs in the second order branch bronchi distal to a bifurcation. The impaction grows in size, layer by layer, in a laminated manner to finally dilate the bronchial wall. The cartilaginous elements are almost entirely destroyed, and there is an infiltration of lymphocytes and eosinophilic neutrophils into the wall. The characteristic yellowish-white appearance of the normal bronchus changes to a reddish brown. Beyond the blocked bronchus suppuration occurs that may be in the form of a nonputrid abscess. At times the suppuration is entirely intrabronchial, occasionally causing the formation of cystic bronchiectasis. This and fibroid pneumonitis are residual sequelae to the bronchial obstruction caused by mucoid impaction. The roentgen appearance of the shadows cast by this disease may simulate tuberculosis, abscess, and neoplasm. Surgery may be indicated to rule out neoplasm and/or to remove segments of lung destroyed by suppuration beyond the impaction. Eight of the author's patients had pulmonary resections, and two are being observed who are receiving nonsurgical treatment, consisting of chemotherapeutic agents, expectorant cough mixtures, and bronchodilators. In four of the eight patients operated on, there have been recurrences of pneumonitis in other segments of the lung that were undoubtedly due to mucoid impaction of the bronchi. Satisfactory eradication of a destroyed segment or lobe by resection, thus eliminating the symptoms of mucoid impaction of bronchi, does not insure against recurrence of the same disease process. The prognosis of mucoid impaction as the complication of asthma is the prognosis of the underlying disease.

Treatment of Cardiospasm.—At the Mayo Clinic, 601 patients with cardiospasm, a nonorganic stenosis of the lowest portion of the esophagus, were treated during the 12 year period of January, 1935, to January, 1947, by dilatation, while 23 is the total number of patients with cardiospasm who were subjected to surgical treatment at this clinic. The cause of cardiospasm is not known, and hence a truly rational approach to the treatment of this disease has not been evolved. Whatever its etiology may be, the present methods of treatment are directed toward the relief of obstruction of the cardia. Exact diagnosis is important. Cardiospasm must be differentiated from diffuse spasm of the esophagus. Diffuse spasm does not respond favorably to either hydrostatic dilatation or surgical treatment. Hydrostatic dilatation is the treatment of choice for most patients with cardiospasm. Successful dilatation in the case of properly diagnosed cardiospasm depends on accurate placement of the dilator in the cardia and severe forceful dilatation of the physiological sphincter by an expanding dilator. A previously swallowed thread permits accurate placement of the dilator and adds to the safety of the procedure. Adequate follow-up studies were carried out in 452 patients treated by this method. Of these 452 patients, 272 (60.2%) obtained relief of dysphagia for periods of 4 to 16 years from a single course of dilatation. In the remaining 180, dysphagia recurred in less than four years. Of the 180 patients, 94 were given a second course of hydrostatic dilatations and 36 of them obtained relief of dysphagia for four years or more, while recurrences developed in the remaining 58. If satisfactory results are not obtained with two courses of hydrostatic dilatations, additional treatment is likely to be of little avail. It must be anticipated that about 20% of the patients cannot be permanently relieved by dilatation. Surgical treatment should be considered for those patients who fail to respond to two or three courses of dilatation therapy. Every effort should be made to carry out surgical treatment before pronounced changes in the esophageal wall have taken place. The Heller operation, which permits the cardia to retain some of its sphincteric property, appears to be the most advantageous surgical procedure. Follow-up of the 23 patients with cardiospasm who underwent surgical treatment showed that late results were not favorable, because most of the patients selected for surgical treatment had far-advanced cardiospasm for which dilatation therapy was impossible or had failed to give relief. Most of the operative procedures carried out permitted reflux of gastric secretions into the esophagus. Peptic esophagitis and ulceration were responsible for most of the poor results.

Kentucky Medical Journal, Bowling Green

49:323-362 (Aug.) 1951

rachial Plexus Block for Surgery of Arm. J. Owen, J. McGowan, C. Owen and W. Sergent.—p. 323.
Proctosigmoidoscopy in Diarrheas. W. L. Cooper.—p. 329.
Gynecological Aspect of Blood Dyscrasias. G. W. Bryant.—p. 335.
Early Diagnosis of Poliomyelitis. A. J. Steigman.—p. 337.
Pregnancy with Congenital Anomalies of Genital Tract. W. E. Oldham.—p. 341.

49:363-428 (Sept.) 1951

Contribution of Alban G. Smith, of Kentucky, to Early History of Surgery. J. W. Markham.—p. 398.
Comparative Morbidity of Early and Late Ambulation. E. Todd Jr. and F. M. Massie.—p. 401.
Renal Disease in Relation to Hypertension. H. L. Clay Jr.—p. 410.

Laryngoscope, St. Louis

61:695-850 (Aug.) 1951

Some Aspects of Inner Ear Therapy. J. A. Hilger and N. F. Goltz.—p. 695.
Congenital Tracheoesophageal Fistula Not Associated with Atresia of Esophagus. C. F. Ferguson.—p. 718.
*Clinical and Experimental Comparison of Cocaine and Pontocaine as Topical Anesthetics in Otolaryngological Practice. P. E. Ireland, J. K. W. Ferguson and E. J. Stark.—p. 767.
Psychosomatic Medicine and Otolaryngology. F. J. Braceland.—p. 778.
Secretory Effusion of Tympanum. G. E. Tremble.—p. 791.
Sarcoma of Nose and Sinuses. H. C. High.—p. 803.
Endotracheal Inhalation Anesthesia: Special Reference to Postoperative Reactions and Suggestions for Their Elimination. P. J. Flagg.—p. 818.
Frontal Sinus: Permanent Drainage Without Deformity. H. P. Schenck.—p. 832.

Comparison of Cocaine and Pontocaine.—This paper reviews experimental and clinical observations on the relative toxicity and potency of cocaine and tetracaine (pontocaine®), two topical anesthetics that are widely used for topical anesthesia in otolaryngology. The mean fatal doses of cocaine and tetracaine were determined in guinea pigs by introduction of solutions
slowly into the trachea. By this method the mean fatal do
cocaine was 24 mg. per kg. of body weight and of tetra
7.2 mg. per kg., giving a relative toxicity of tetracaine to coc
of 3½:1. The usual clinical practice of using tetracaine in c
fifth the concentration of cocaine might be expected to g
tetracaine a slight advantage in safety. This, however, was
confirmed by the clinical survey. Clinical tests of 5% coc
and 1% tetracaine by application to the nasal septum sho
that the time of onset of anesthesia was about twice as l
with tetracaine as with cocaine. The duration of anesthesia
about equal with the two drugs, although the time of applica
of the cocaine was shorter. In a survey of some of the la
clinics in the United States and Canada with reference to
use of these two drugs, it was found that cocaine is by far
majority choice in clinical use. Complications of a severe na
and deaths were found more frequently with the use of t
caine. Cocaine has long years of useful service as a top
anesthetic, and its vagaries are well known. It is still prob
the most satisfactory of these two drugs for use in otola
gology.

Michigan State Medical Society Journal, Lansing

50:833-968 (Aug.) 1951

Prematurity: Prevention; Management of Delivery. G. Kamperma
D. Morgan.—p. 865.
Management of Premature Infant. C. A. Smith.—p. 872.
The Emotionally Healthy Child. B. B. Stamell.—p. 875.
Management of Migraine in Office Practice. A. Gotz.—p. 880.
NHP Insulin. P. White.—p. 883.
Sensitivity of Fungi to Antibiotics and Radioactivity Compared to
in Vitro. J. M. Hammer, I. A. Pearson, K. E. Corrigan and
Hayden.—p. 887.
Doctors and Dollars. H. C. Black and A. E. Skaggs.—p. 894.

New England Journal of Medicine, Boston

245:235-274 (Aug. 16) 1951

*Rapid-Rocking Bed: Its Effect on Ventilation of Poliomyelitis
with Respiratory Paralysis. F. Plum and G. D. Whedon.—p. 2
Arterial Hypertension Associated with Acute Anterior Polion
F. H. McDowell and F. Plum.—p. 241.
Penicillin Allergy. J. W. Irwin, M. J. Graham, B. M. Jacobs
W. S. Burrage.—p. 246.
Physician's Social Responsibility. J. H. Townsend.—p. 248.
Treatment of Fractures and Dislocations. E. F. Cave and C. R.
—p. 253.

**The Rapid-Rocking Bed in Poliomyelitis with Respirato
ralysis.**—In 1932 Eve demonstrated rocking to be an ef
method of artificial respiration. During the past two yea
rapid-rocking bed has been used at the New York Hosp
supply artificial respiration to poliomyelitis patients wit
piratory paralysis of the spinal type. Two rapid-rocking
equipped with footboards and Gatch attachments for the
and head were used. They were run at a maximum rocking
of 40 to 44 degrees (20 to 22 degrees in each direction fro
horizontal), usually at rates of from 16 to 24 cycles per m
Fifteen patients with respiratory insufficiency recovering
acute anterior poliomyelitis were transferred from tank
pirators to rapid-rocking beds as soon as their tempe
reached normal and they could breathe unassisted fo
minutes. The time spent out of the respirator and on the
ing bed were increased each day. As indicated by tidal v
and vital-capacity measurements, the rapid-rocking bed br
about marked increases in ventilation over that of the r
state. Although the tidal volumes produced by rocking we
so great as could be attained by tank respirators, adequate
tive alveolar minute ventilations were produced in all con
cent patients. Substitution of the rapid-rocking bed fo
respirator early in convalescence facilitated nursing car
physiotherapy and prevented fixation of the diaphragm. Ro
aided the restoration of independent breathing and en
several patients to overcome their dependence on the respi
Of the five patients with acute poliomyelitis and moderat
piratory insufficiency who were treated on the rocking bed
had to be transferred to tank respirators to correct fa
carbon-dioxide retention, or anoxemia and the fifth obt
barely adequate ventilation. Frequent spirometry and seri
terminations of carbon dioxide combining power gave val
information about the regulation of artificial respiration.

Surgery, Gynecology and Obstetrics, Chicago

93:257-384 (Sept.) 1951

Experimental and Clinical Experiences with Use of Fascia Lata Applied as Graft About Major Arteries After Thrombo-Endarterectomy and Aneurysmorrhaphy. E. J. Wylie, E. Kerr and O. Davies.—p. 257.
Medial Deviation of Ureters Complicating Carcinoma of Rectum and Sigmoid, and Proctosigmoidectomy. R. J. Spillane, T. F. Kaiser and G. C. Prather.—p. 273.
erum Enzymatic Response (Diastase and Lipase) After Stimulation of External Pancreatic Secretion with Secretin and Methacholine: Preliminary Report. R. Sanchez-Ubeda and L. M. Rousselot.—p. 283.
Attempts at Detection of Lecithinase in Blood and Lymph Following Intestinal Strangulation Obstruction. H. Laufman, C. A. Tanturi and W. E. Furr Jr.—p. 292.
urgical Aspects of Acute Head Injuries. J. M. Meredith.—p. 297.
Experimental Study of Thyroid Regeneration Following Subtotal Thyroidectomy. R. Johansen, R. E. Gardner, M. Galante and others. —p. 303.
Antethoracic Jejunal Transplantation for Congenital Esophageal Atresia with Hypoplasia of Lower Esophageal Segment. W. P. Longmire Jr. —p. 310.
Preclinical Paget's Disease of Nipple. M. B. Dockerty and S. W. Harrington.—p. 317.
Histological Study of Effect of Cortisone on Wounds Healing Per Primam: Experimental Study. J. W. Cole, J. L. Orbison, W. D. Holden and others.—p. 321.
Adenoma-Carcinoma Sequence in Cancer of Colon. R. J. Jackman and C. W. Mayo.—p. 327.
Exstrophy of Bladder Treated by Rectal Transplantation of Divided Trigone: Modification of Maydl-Bergenhem Operations. W. E. Goodwin and P. B. Hudson.—p. 331.
Administration of Heparin. I. F. Duff, J. W. Linman and R. Birch. —p. 343.
Gastric Aspiration as Technique for Prevention of Asphyxia in the Newborn Infant. D. M. Little Jr., F. H. D'Andrea and A. Mastrangelo Jr. —p. 363.

ascia Lata Applied as Graft About Arteries.—Experimental perations were designed that produced trauma and weakening f the aorta in animals similar to that produced in human subects following thromboendarterectomy. Following such operations, release of the clamps occluding the aorta resulted in bleeding from the suture line and rapid dilatation of the weakened egment. The application of fascia lata grafts about the aorta revented this bleeding and dilatation and gave adequate support o the weakened arterial segments. Six patients with occlusion f major arteries due to arteriosclerosis have been treated by hromboendarterectomy of the thrombosed arteries. The length f the thrombosed segments varied from 7 to 22 cm. There were o operative deaths, but two patients died in the postoperative eriod from cerebrovascular thrombosis. Amputation was evenually necessary in two patients, owing in one to chronic thromosis of distal arteries too small to be amenable to surgical reatment. The arteries from which the thrombus had been removed remained patent in all cases. Fascia lata was used to give dditional support to the weakened arterial segments in three ases. One patient with an aneurysm of the abdominal aorta s discussed in whom both dilatation and partial thrombosis were resent. After thromboendarterectomy of the dilated aorta had een accomplished, the use of fascia lata as an external suporting layer made the performance of restorative aneurysmorhaphy possible.

erum Enzymatic Response After Stimulation of Pancreatic ecretion.—While conducting experiments designed to evaluate modifications of the so-called secretin test, the authors of this aper became interested in the study of the serum enzymes iastase and lipase as an aid in the diagnosis of subacute panreatic disease. The pancreas of patients with and without panreatic disease was stimulated concurrently with secretin and methacholine chloride (mecholyl®). Tests were made on 52 paients, divided into a control group without pancreatic disease, group with proved pancreatic disease, and a group with susected pancreatic disease. Individual responses of serum diastase within these groups follow a uniform pattern and are consistent nough to suggest that this study may be valuable in the clinical valuation of patients with pancreatic disease. Serum lipase responses did not appear to follow a consistent pattern when ssayed one hour after stimulation. The possible mechanism f serum diastase elevation when seen in patients without panreatic disease is discussed, and the pathological factors that may account for the consistently greater response seen in patients with certain disease of the pancreas are considered. These tests appear to be applicable to the study of subacute pancreatic disease and perhaps early neoplasm of the pancreatic gland. In a case of probable carcinoma of the pancreas positive results were obtained. The possible sources of error are discussed. Further clinical study is needed. No adverse reactions should be encountered in concurrent use of secretin and methacholine if certain precautions are followed.

Antethoracic Jejunal Transplantation in Congenital Esophageal Atresia.—A primary end-to-end anastomosis of the esophagus with closure of the tracheal fistula has been accepted as the procedure of choice in all cases of congenital esophageal atresia with tracheo-esophageal fistula when the anomaly is such that the ends of the esophagus may be satisfactorily approximated. Many different types of multiple stage procedures for esophageal reconstruction have been described for the treatment of anomalies unsuitable for primary anastomosis, but the long period of hospitalization, the numerous complications encountered in the multiple operations, and the uncertain end results have suggested to some surgeons that a primary esophageal anastomosis should be the only operative procedure considered and that, if such an operation is not feasible, no further attempt should be made to prolong the patient's life. In more recent years attempts to perform an esophagogastrostomy after advancing the stomach into the left side of the thorax have met with some success in cases of congenital atresia. This procedure has the advantage of offering success or failure in one stage. There have been few reports of successful outcomes in patients so treated and few detailed follow-up studies. This report presents a method of esophageal reconstruction that has been used successfully in two newborn infants who had hypoplasia of the lower esophageal segment. Antethoracic esophageal reconstruction was accomplished by mobilization and transplantation of a segment of jejunum long enough to extend from the cervical esophagus to the stomach. The first operation was performed in three stages and the second in two. Sixteen days intervened between the two stages of the second reconstruction. In both cases function of the reconstructed esophagus has been satisfactory and general development has been normal in the two-year period since completion of the procedure. Experience gained from these operations would suggest that the mesenteric vascular supply of the very young infant is sufficiently labile to permit performance of this procedure regularly for the treatment of hypoplasia of the lower esophageal segment. Both stages of the antethoracic esophageal reconstruction are well tolerated during early infancy, and satisfactory continuity of the alimentary tract may be established during the first few weeks of life.

Texas State Journal of Medicine, Fort Worth

47:543-612 (Aug.) 1951

Clinical Evaluation of NPH-50 Insulin in Management of Diabetes Mellitus. A. E. Groff, H. T. Engelhardt and J. M. Skelton.—p. 547.
Transperitoneal Implantation of Intensity Radium Needles: Preliminary Report. R. S. Clayton.—p. 552.
Tumor Seminar. A. P. Stout.—p. 559.
Psychosomatic Illness in General Practice. G. C. Smith.—p. 586.
Perforated Meckel's Diverticulum. W. B. Sealy.—p. 588.
*Use of Polyethylene Catheter for Prolonged Tube Feeding. F. C. Usher. —p. 590.

Polyethylene Catheter for Prolonged Tube Feeding.—The irritating effect of rubber feeding tubes that are left in place for periods exceeding a week is well known. Ulceration and erosion of the mucosa of the nasopharynx and esophagus may be caused. Usher recently used a polyethylene catheter for prolonged gastric tube feeding with great success. This catheter was originally intended for replacement transfusions in infants and for constant intravenous therapy in older children and adults; its inside diameter measures 0.047 in. (0.12 cm.), and the outside diameter is 0.067 in. (0.17 cm.). Two cases are reported in which tube feeding with the polyethylene catheter was maintained for four-month and two-month periods with no erosion or ulceration of the pharynx or esophagus and with no discomfort to the patient. The small diameter of the tube and the ease with which it was passed in the presence of considerable edema of the throat suggests that it might be used for feeding in benign and malignant strictures of the esophagus.

FOREIGN

Acta Medica Orientalia, Jerusalem

10:143-168 (July) 1951

Problem of Palindromic Rheumatism: Clinical Study, Based on Report of 14 Cases. Z. Lewitus.—p. 143.
Monteggia Fractures. A. M. Katznelson.—p. 150.
*Khellin Aerosol in Bronchial Asthma. K. Braun and E. Eilender.—p. 158.
Plasma Sponge: New Absorbable Material for Surgical Use. G. J. Stark and Z. Jerushalmy.—p. 161.

Khellin Aerosol in Bronchial Asthma.—Pharmacological studies have shown that khellin, an extract of the seeds of Ammi Visnaga, relaxes the smooth muscles. This property has been demonstrated in the coronary vessels, the intestines, the ureters, and the bronchi. Khellin has been used extensively in patients with angina pectoris, and favorable results have been reported by a number of authors, whereas others have asserted that it has no more effect than a placebo. Braun and Eilender used Khellin in the form of an aerosol spray in 10 patients with acute bronchial asthma. The vital capacity and tidal air were recorded before and shortly after the administration of 7 mg. of khellin in an aerosol spray. All 10 patients showed a decrease in dyspnea, diminution of wheezing and rales, and an increase in the vital capacity. The effect of khellin on tidal air was not pronounced.

Acta Medica Scandinavica, Stockholm

140:159-238 (July 23) 1951. **Partial Index**

*Myocarditis in Poliomyelitis. H. Laake.—p. 159.
Papers on the Kidney: III. Inulin or Creatinine as Test-Substance in Rehberg's *Kidney Test. G. Ekehorn.*—p. 170.
Haemopoesis as Seen in Batrechoseps Attenuatus. F. Duran-Jorda.—p. 183.
*Studies on Castle's Extrinsic Factor. R. Gordin.—p. 199.

Myocarditis in Poliomyelitis.—Electrocardiograms made of 265 patients with poliomyelitis who were hospitalized in the course of 10 years were normal in 181 patients (89 female and 92 male) and abnormal in 84 patients (52 female and 32 male); i. e., in 31.7%. There was no increased incidence of pathological electrocardiograms during any particular year. Abnormal tracings were observed more frequently in patients aged over 10 than in younger patients. No particular sex disposition was noted. Pathological electrocardiographic tracings were rare in nonparalytic poliomyelitis. In patients with the spinal type of poliomyelitis associated with moderate paresis, the incidence of abnormal electrocardiograms was 25.5%, while in patients with spinal type and with extensive involvement it was more than 50%. In bulbar poliomyelitis it was 40%. In 50 patients several electrocardiograms were taken during an observation period of two days to eight months. Patients with normal electrocardiograms obtained during the acute phase of poliomyelitis did not show electrocardiographic evidence of myocardial lesions during the further course of the disease. Of the 84 patients with abnormal electrocardiographic tracings, 4 showed delayed auriculoventricular conduction time for one week, 4 showed disturbance of coronary sinus rhythm, which improved within two days in 2, 15 presented pathological P waves in leads 2 and 3, and 21 showed abnormal P waves, ST intervals, and T waves, which were usually transitory, and 40 showed transitory abnormal ST waves and/or abnormal T waves. The electrocardiogram became normal in 34 of the 50 patients in whom repeated records were obtained. A clinical diagnosis of myocarditis was not made in any of the patients. In two of three patients who died microscopic examination of the myocardium revealed cellular infiltration of the interstitial tissue of the auricules and ventricles, and in one it showed pronounced fibrous tissue formation, cellular infiltration, and fragmentation of myocardium. The gross appearance of the heart was normal in all three. Definite conclusions as to the incidence of functional changes or of changes of acute myocarditis could not be drawn on the basis of these cases.

Castle's Extrinsic Factor.—To trace and produce in the purest possible form a substance acting as an extrinsic factor, experiments were performed on 17 patients with cryptogenetic pernicious anemia who were given substances other than ordinary meat by mouth, with gastric juice used as the intrinsic factor. The substances used as the extrinsic factor were peptone, fibrin hydrolysate (aminosol®), crude meat extract, pure meat extract, raw ground liver, liver extract ("heptomin") and vitamin B
good effect was obtained with peptone, different meat ex
small quantities of liver and liver extract, and small doses (
of vitamin B_{12}. Tests with fibrin hydrolysate gave less sat
tory results. The amount of intrinsic factor contained in 4
of normal gastric juice proved sufficient as a daily dose. Ch
cal analyses of fibrin hydrolysate and peptone demonstrated
these substances do not contain cobalt. Consequently, the
played by cobalt in the extrinsic factor effect, as suggested
Smith and Rickes, with respect to vitamin B_{12}, seems to
debatable.

Helvetica Paediatrica Acta, Basel

6:269-364 (Aug.) 1951. **Partial Index**

Life Span of Red Blood Cells in Cooley's Anemia. G. Frontali and G
Stegagno.—p. 271.
*"Benign" Pyelonephritic and Postpyelonephritic Hypertension. G. F
coni, J. Rüegg and E. Dieterle.—p. 281.
Critical Study of Biologic Tests as Aid in Diagnosis of Spasmo
Conditions in Infants: I. Induced Calciuria. P. Girardet and
Zellweger.—p. 325.

"Benign" Pyelonephritic Hypertension.—The occurrence
benign pyelonephritic hypertension is reported in a man
30, who at the age of 8 began to have repeated attacks of
ache associated with nausea and vomiting. At the age
albuminuria occurred for the first time. At the age of 10
patient had nycturia, coliuria, leukocyturia, and mild alb
nuria. The dilution test showed some delay in excretion,
concentration test revealed hyposthenuria; the nonprotein
gen was mostly normal. Roentgenologic examination sh
a slight, clubshaped dilatation of the pelvis of the left ki
and of the calices. Blood pressure varied from 160/1
195/170. The fundus oculi presented the aspect of severe
nuric, angiospastic retinitis. A diagnosis of chronic pyel
ritis associated with malignant hypertension was made, a
unfavorable prognosis was given. In the course of the foll
years the condition of the patient improved considerabl
that he was able to take part in sports. At the age of 12 h
rheumatic pancarditis with resulting permanent aortic i
ciency. The pyelonephritic condition did not change, but
was a mild regression in hypertension and nearly complet
appearance of the neuroretinitis. Growth was normal, a
the age of 30 the patient had no subjective complaints. H
still leptosomatic. The pubic hair was of female type,
pressure was 160/85, the urine findings were the same
the age of 10, and the nonprotein nitrogen was normal.
case first was considered as an exception to the rule that
hypertension is malignant, but 10 additional cases of b
pyelonephritic hypertension were observed in seven femal
three male patients in whom the essential symptoms of h
tension and chronic pyelonephritis persisted for many y
Not all the patients presented the full syndrome, which
includes hyposthenuria or isosthenuria and nocturia, which
cause nocturnal enuresis and may be the first sign of the ill
Disturbances of the electrolyte pattern of the extracellular
occurred occasionally. In these cases pyelography often rev
bilateral clubshaped dilatation of the calices and shrinka
the renal pyramids. It is suggested that the hypertensi
caused by an inflammatory irritation of the renin-producing
of the distal tubules rather than by ischemia impairing the
ney function as postulated by Goldblatt.

Journal of Physiology, London

114:267-418 (July) 1951. **Partial Index**

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Initiation of Shivering by Cooled Blood Returning from Lower
E. M. Glaser and R. V. H. Jones.—p. 277.
Effect of Inhalation of High and Low Oxygen Concentrations on R
tion of Newborn Infant. K. W. Cross and P. Warner.—p. 283.
Relationship Between Mammalian Foetal Weight and Conception
A. St. G. Huggett and W. F. Widdas.—p. 306.
Observations on Action of Acetylcholine and Adrenaline on Hypo
mus. H. N. Duke and M. Pickford.—p. 325.
Absorption of Protein from Peritoneal Cavity. F. C. Courtice and A
Steinbeck.—p. 336.
Distribution of Blood to Brain. D. A. McDonald and J. M. P
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Critical Assessment of Use of Blood Cells Labelled with Radio
Phosphorus for Quantitative Study of Skin Blood Content. R. W
Watts.—p. 382.

Journal of Tropical Medicine and Hygiene, London

54:161-180 (Aug.) 1951

omparative Value of Amoebicidal Drugs. A. J. Wilmot, T. G. Armstrong and R. Elsdon-Dew.—p. 161.
mphostatic Verrucosis in Case of Tertiary Yaws. D. B. Jelliffe. —p. 165.
oblems of Nutrition in the Tropics. A. G. Van Veen.—p. 168.
ote on Tropicaloid Ulcer (Castellani): Its Occurrence in Italy. V. Servino.—p. 171.

omparative Value of Amebacidal Drugs.—The commonly ed amebacidal drugs, emetine hydrochloride, diiodohydroxy-inoline (diodoquin®), emetine bismuth iodide, carbarsone and iniofon, and some others, all used singly, were given a thera-utic trial in several hundred African native patients with acute cerative amebiasis. Each series treated with one of the ex-rimental drugs usually comprised about 50 patients, and 50 ditional patients, who received no treatment, served as con-ols. Emetine hydrochloride was administered intramuscularly doses of 1 grain (60 mg.) for 15 days. Emetine bismuth iodide s given by mouth in doses of 3 grains (0.2 gm.) in com-essed enteric-coated pills and later only in plain gelatine cap-les, nightly for 10 nights. Diiodohydroxyquinoline was given doses of 3 tablets (0.21 gm. each) three times daily for 20 ys. Carbarsone was given in doses of 4 grains (0.25 gm.) ice daily for 10 days. Chiniofon was given in doses of 0.5 . three times daily for three days and then 1 gm. three times ily for seven days. The criteria of diagnosis and response to eatment were rigid. Results give information on the value of e test drugs only in clearing the patients of symptoms, ulcers, d amebae after 20 days from the start of treatment. Results follow-up examinations or permanent clearance were not ported. Emetine hydrochloride, diiodohydroxyquinoline, eme-e bismuth iodide, and chiniofon appeared to have a statis-cally similar effect, with absolute failures numbered 27% and ccesses 55%. Only those patients were accepted as successes whom all visible ulcers were healed, with clearance of amebae. he high absolute failure rate of 46% with carbarsone placed is drug in a lower category of usefulness. With all of these e drugs there was a high percentage of unimproved patients. netine bismuth iodide must be given in gelatine capsules; the anufacture of the drug in compressed pills should be discon-ued. Other drugs recently placed on the market, such as bis-uth glycolylarsanilate (milibis®) and chloroquine diphosphate ralen®) were found to be inferior to emetine and cannot be commended for intestinal amebiasis. It is emphasized that this mparison of the effects of amebacidal drugs used singly should t be considered as a recommendation for individual therapy. previous papers the authors showed that some antibiotics hen used either alone or in combination with amebacidal agents ere far more efficacious.

ancet, London

2:229-272 (Aug. 11) 1951

bsorption of Hormone Implants in Man. P. M. F. Bishop and S. J. Folley.—p. 229.
istribution of Radio-Iodine in Human Thyroid Gland. S. Taylor and F. S. Stewart.—p. 232.
icro-Electrophoresis of Protein on Filter-Paper. F. V. Flynn and P. de Mayo.—p. 235.
ucinases in Ulcerative Colitis. H. G. Sammons.—p. 239.
ontrol of Anticoagulant Therapy. A. J. E. Brafield and W. W. Walther. —p. 240.
ignificance of Clotting Factors in Blood-Platelets, in Normal and Pathological Conditions. S. van Creveld and M. M. P. Paulssen. —p. 242.
ereals, Phytic Acid, and Calcification. A. R. P. Walker.—p. 244.
lat Finger-Nails in Cirrhosis of Liver. J. Kleeberg.—p. 248.

ormone Implants in Man.—The implantation of pellets is a ell-established method of administering steroid hormones. Ob-rvations were made from 1942 to 1944. The pellets used con-sted of pure crystals of the hormone without diluent or cipient. They were of two types: cylindrical cast or fused pel-ts, and compressed pellets in the shape of cylinders with con-x ends. Nine hormones or their esters were studied, and herever possible a comparison was made between fused and mpressed pellets. In the case of diethylstilbestrol and hexestrol ly compressed pellets were used, because fused pellets of these bstances tend to disintegrate. Implantation was made subcutaneously into the antecubital fossa or into the subscapular region. The pellets were removed at various intervals after implantation, and their absorption rate was studied. The compounds were rated in descending order of absorption rates as follows: compressed testosterone, compressed and fused androstenedione, fused progesterone, fused testosterone, compressed hexestrol and diethylstilbestrol, compressed and fused testosterone propionate, compressed estradiol dipropionate, fused desoxycorticosterone acetate, and compressed and fused estradiol. Calculations of the half-life in days and the amount initially absorbed daily corresponded with clinical observations regarding the duration of alleviation of symptoms, considering that the clinical effects disappear some weeks before the pellet has theoretically been completely absorbed.

Flat Fingernails in Cirrhosis of Liver.—In the peculiar abnormality described, the fingernails lose their typical curvature and become flat, as if compressed, but the finger tips, the muscles, and the bones of the terminal phalanges remain unchanged, unlike those of hippocratic fingers. The nail beds are usually whitish or light pink, possibly owing to anemia. Whether the surface of the nails is smooth or lined depends on the patient's age. Even with long parallel lines the flatness persists. This anatomic change has no influence on the function of the hands, is not painful, and has no effect on the sensitivity of the fingertips. Not all the fingers are necessarily affected. The change begins with one finger, usually the thumb, the first and middle fingers being next in frequency. The first patient in whom the author observed this abnormality was a heavy drinker, who was in a very advanced stage of typical alcoholic cirrhosis of the liver. A second patient had typical biliary cirrhosis due to cholangitis. A third patient had hemochromatosis and all the signs and symptoms of hepatopancreatic cirrhosis with typical changes in the skin. In a fourth patient cirrhosis had probably developed after two severe attacks of infectious (virus) hepatitis; a fifth patient had Banti's syndrome. Since the causes of the hepatic cirrhosis in these cases were different, it is probably the cirrhosis itself that causes these changes in the nails, not the conditions producing the cirrhosis. The patients with the flat nails had the following changes in common: (1) long-standing and advanced cirrhosis, positive liver tests, and low hemoglobin values. The author observed such nails also in one healthy man, who until the age of 12 had subsisted on a vegetarian diet and who had been subject to frequent fractures until the diet was changed.

2:273-316 (Aug. 18) 1951

*Outstanding Problems in Treatment of Burns. L. Colebrook.—p. 273.
*Recurrent Abdominal Pain in Children. R. M. Keith and D. O'Neill. —p. 278.
Abnormal Water Metabolism in Simmonds's Disease: Effect of Hormonal Therapy. J. D. Robertson.—p. 282.
Experimental Inquiry into Cause of Industrial Bladder Cancer. G. M. Bonser, D. B. Clayson and J. W. Jull.—p. 286.
*Accelerated Skeletal Development from Thyrotoxicosis and Thyroid Overdosage in Childhood. B. Schlesinger and O. D. Fisher.—p. 289.
Intrathecal Tuberculin in Tuberculous Meningitis. A. P. Fletcher. —p. 290.
Changes Observed in Mature Granulocytes Stained by Feulgen Method in Different Age-Groups. N. Alder.—p. 293.
Aspiration of Chest: Improved Method. H. A. W. Forbes and J. M. Starks.—p. 294.

Treatment of Burns.—Colebrook surveys the experiences in two centers specializing in the treatment of burns over the last eight years. In such treatment the principal aim should be to eliminate infection. The remarkable benefit accruing from such a policy is demonstrated by the fact that in six years, the over-all death rate has fallen from 10% to 4.5%, and a further reduction seems possible. Pain is slight or nonexistent in burns that remain uninfected. Furthermore, the average hospital stay has been reduced from 50 to 30 days, largely owing to the increased use of early skin grafting of the deep burns. But the success of that policy has been closely bound up with the control of infection. The author feels that the more completely we eliminate infection, the larger will be the part that surgery can play in the treatment of severe burns, with great advantage to the patients and great saving of hospital beds. Every hospital should have a properly air-conditioned dressing room, but it is probably not practicable for every hospital to have always available surgeons with considerable experience in the management of burns, shock, or the special problems of extensive resurfacing. For severe burns, it probably would be best to have special centers specially equipped and staffed for dealing with burns. The badly burnt patient is as difficult an "emergency" as is a patient with a serious injury of an eye, the brain, or the face. Such patients are sent to special centers to be treated by surgeons with long experience in their management and so it should be with burns. The author's experience in Birmingham suggests that from 40 to 50 beds would be needed for a population of half a million people, if the number of burn accidents continues at the same high rate. How to reduce that number is perhaps the most important of all problems in connection with burns.

Recurrent Abdominal Pain in Children.—Keith and O'Neill observed that among outpatient children emotional tension and recurrent abdominal pain often occurred together. To find out how commonly the repeated attacks of abdominal pain were part of an emotional state, a consecutive series of 25 children with this symptom were investigated. The children ranged in age from 3 to 16 years. Attention was given to habits of eating and sleeping, behavior at home and at school, and the family atmosphere and home environment. Besides a clinical examination, x-ray films of the chest were taken in almost all cases, and special tests, such as the barium meal and electroencephalography, were done when indicated. During the psychiatric examination, the first few sessions were as a rule with the mother alone; at later visits the mother and the child were interviewed separately. Puppets to represent members of the family, schoolteachers, and friends were used to enable younger children to make their motives and feelings comprehensible to the observer. The nature of the pain in four children remained obscure. The remaining 21 children are divided into two groups. In 15 emotional excitement was the principal determinant of attacks of pain, and the time relationship between the two was plain. In the remaining six children emotional excitement was one determinant among others, and physical agencies, such as eating too fast, seemed to explain some attacks. The authors cite examples of attacks associated with anxiety, with anger, or with grief. Of the 21 children whose attacks were related in some way to stress, 17 had other signs of tension, such as headaches, poor sleep, bad dreams, fits of crying, irritability, stammer, restlessness, tics, fidgeting, and nail-biting. The attacks of pain seemed to be one component of an "adaptive disorder," which manifested itself also in these other ways. The phenomena mentioned above, like the attacks of pain, were worse in conditions of stress, and improved with psychotherapy. Of the 16 patients who were treated at some length, 2 continued to have symptoms as before; 6 showed some improvement; and 8 ceased to have attacks and improved in general health.

Accelerated Skeletal Development from Thyrotoxicosis and Thyroid Overdosage.—Three cases are reported that illustrate the effect of excessive thyroid secretion or overdosage of thyroid extract on growth and skeletal development of children. In the first case, a girl, aged 3 years 11 months, had a two-year history of excessive restlessness and irritability that had become worse during the preceding two months and was associated with swelling of the neck and protrusion of the eyes. She was tall and heavy for her age, and the diagnosis of thyrotoxicosis was confirmed by the presence of a goiter, tremor and sweating of the hands, tachycardia, an increased basal metabolic rate, and by subsequent excellent response to methylthiouracil therapy. The skeletal development was about two years too advanced. The second case concerned a mongoloid who had been given thyroid extract for nearly four years. She presented typical mongoloid features but was obviously tall for her age. In addition, she had bilateral congenital cataracts with exophthalmos, a palpable right lobe of the thyroid gland, and a congenital heart lesion. The rate of growth and skeletal development, which was 18 months too advanced, were remarkable for a mongoloid, in whom the opposite is to be expected, especially in the presence of a congenital cardiac lesion. These features were therefore considered to be the result of continuous thyroid treatment in the presence of a normal gland. The third child was a cretin who had also been treated with thyroid extract and who had signs of thyrotoxicosis, a voracious appetite, persistent tachycardia, sweating, accelerated growth, and skeletal development two years too advanced. The authors say that although more than 750 ca of thyrotoxicosis in children have been published, acceler skeletal development is rarely mentioned. It was first noted b Holmgren in 1906. The delayed growth of bone and dwarf stature characteristic of juvenile hypothyroidism can be correc by adequate thyroid medication; but, if the dose is exces and treatment given too long, the correction proceeds too f accelerating ossification, with the danger of early epiphy union, bringing growth to a standstill. Though blood-choles levels and serial electrocardiograms show whether the dos of thyroid is adequate, serial radiography of the skeleton a measurements of height help to prevent overdosage.

Minerva Chirurgica, Turin

6:279-310 (June 1) 1951. **Partial Index**

Late Results of Reduction of Congenital Dislocation of Hip by Surg Intervention. E. De Marchi.—p. 279.
Preoperative Trial of "Veritol-Test." F. R. Banchieri.—p. 283.
*Estrogen Therapy of Mammary Cancer. A. Astuni and G. Dal —p. 294.

Estrogen Therapy in Mammary Cancer.—Nine patients w primary or recurrent inoperable mammary cancer were trea with a synthetic water-soluble estrogen preparation, diethyls bestrol disulfate. The drug was administered intravenously tw a day in doses of 40 mg. each for 25 days, with a total d of 2 gm. All the patients were menopausal, including o woman, 29, who had previously undergone oophorectomy. T product was tolerated without side effects by all of them. I gression of the tumor, which had become movable, was so p nounced in a woman, 70, that surgical intervention, imposs before, was justified after the treatment. In a patient 64, large-sized tumor subsided almost completely, enlarged axill lymph nodes disappeared, and the patient has been well for o and a half years. Decrease in the size of the lymph node m stasis was observed in a woman 65, who showed also tempor but pronounced improvement in the general condition. Th other patients, 49, 29, and 46, respectively, were improved, pain caused by bone metastasis diminished, although no impr ment in bone metastatis was demonstrated by roentgenogra examination. A patient 55, who was admitted to the hosp with pertrochanteric fracture of the left femur due to b metastasis occurring three years after mastectomy for cance the breast, made a complete recovery with recalcification of lesion; however, this encouraging result cannot be [illegible] only to the estrogen therapy, because it was combined roentgen therapy. Results were doubtful in another woman in whom the estrogen therapy was also combined with [illegible] therapy. One patient 64, who because of severe circulatory turbance received only 40 mg. of the drug per day (*total d* 740 mg.), was a therapeutic failure. Thus, estrogen *therapy* proved to be a valuable adjuvant in the treatment of mamm cancer. But because of the only partial and temporary the authors believe that it should be limited to cases of p or recurrent inoperable mammary cancer.

Monatsschrift für Kinderheilkunde, Berlin

99:281-320 (Aug.) 1951. **Partial Index**

Scarlet Fever Vaccine and Penicillin in Treatment of Scarlet F H. G. Honerla.—p. 281.
*Glycoprival Inanition in Infants. Mader and Holz.—p. 283.
Studies on Reliability of Serologic Control Tests for Syphilis in Venous Blood of Newborn Infants. J. Oehme.—p. 290.
*Hydrocephalic Disturbances and Tuberculous Meningitis in the Co of Treatment with Streptomycin. E. Hoen and H. Schmidt-R —p. 292.
Bronchial Asthma During Childhood. *F. Lehmann-Grube.*—p. 307.

Glycoprival Malnutrition in Infants.—Clinical observations reported on infants in whom nutritional disturbances w accompanied by considerable reductions in blood sugar val and by a fall in temperature, which at times caused severe c lapse or collapse-like crises. Such cases of glycoprival inanit are not caused by one factor alone. This is proved by the obs vation that not every case of dystrophy resulting from nut tional disturbances is accompanied by a reduction in blood sug The fact that the oral administration of sugar is rapidly f lowed by a lasting increase in the blood sugar content, where intravenous administration of dextrose after a temporary increase of about an hour and a half is again followed by a rapid decrease in blood sugar, seems to indicate the importance of the liver in these processes. As a result of severe depletion in its glycogen stores the liver seems no longer capable of supplying the energy requirements of the peripheral parts of the body by way of the blood sugar. This glycogen deficiency can be traced to a reduced absorption of carbohydrates as the result of prolonged dyspepsia. Apparently, an inhibition of the phosphorylation processes plays a part in the absorption and metabolism of carbohydrates. This concept is further supported by Diehl and Thaddea, who assume that the weakness or toxic impairment of the adrenal cortex in Addison's disease is a sequel of chronic gastrointestinal disturbances. The blood sugar crises in the course of severe dyspepsia, or glycoprival inanition, make it necessary to investigate the blood sugar values in all severe nutritional disturbances.

Hydrocephalic Disturbances During Streptomycin Therapy of Tuberculous Meningitis.—This paper reports on air encephalography in 52 children with tuberculous meningitis. The introduction of small quantities of air is usually adequate, especially if chief emphasis is placed on fluoroscopy. A rather severe dilatation of the ventricle system was observed in 41 of the 52 children. If treatment is begun early or in cases that are rapidly fatal, the hydrocephalus is usually slight or is completely absent. The primary localization of the disease process seems to be of particular importance for the absence or the late appearance of hydrocephalic dilatation. This is demonstrated in several examples. Asymmetry of the dilated lateral ventricles was relatively frequent. The frequent concurrence of severe hydrocephalus and primary atrophy of the optic nerve seemed especially noteworthy. In addition to inflammatory hypersecretion a disturbance of the resorption must be held responsible for the development of the hydrocephalus; this could be proved with the aid of the iodine test. The extent of the hydrocephalus plays an important part in the prognosis of tuberculous meningitis. Retrogression of dilated ventricles was observed in three cases. The author calls attention to the possible dangers of encephalography in cases of tuberculous meningitis and stresses the need of careful selection of cases. If air is introduced during the interval when no treatment is given it is advisable to give streptomycin concurrently.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

95:2237-2308 (Aug. 4) 1951. Partial Index

*Psychosomatic Aspects of Intraocular Pressure. G. W. H. M. van Alphen and B. Stokvis.—p. 2246.
Experiences with Testing Function of Adrenals by Means of Epinephrine. B. Oldenziel.—p. 2257.
*The Sign of Tonelli. G. C. J. Kruisinga.—p. 2270.

Psychosomatic Aspects of Intraocular Pressure.—Most ophthalmologists have known of cases in which an attack of acute glaucoma was preceded by emotional shock. Some cases of this type are cited and evaluated. The connection between the autonomic nervous system and glaucoma is reviewed with regard to the psychogenetic origin of this disorder. Experiments revealed, however, that very severe emotional shock exerts no influence on the ocular pressure of persons with normal eyes. With the aid of hypnotic methods it was possible to establish correlations between ocular pressure and emotional conditions in cases of psychogenic glaucoma. The psychogenesis of glaucoma should be investigated, and psychosomatic treatment should be tried in cases of glaucoma.

Tonelli's Sign.—In 1932 Tonelli called attention to the fact that when pressure on the eyeball results in a change in the shape of the pupil, this may be regarded as a sign of death. He regarded this as an aid in the differentiation between apparent and real death. Bilateral or multilateral pressure is exerted on the eyeball at the border between the cornea and sclera. Some investigators questioned the reliability of Tonelli's sign, but Kruisinga shows that many factors indicate the reliability of the sign. He feels that 9 negative cases among Lignac's 3,419 positive ones amounts to a very small percentage, nevertheless, this indicates that the sign is not 100% reliable. Tonelli's sign should be further investigated.

Revista Brasileira de Medicina, Rio de Janeiro

8:463-538 (July) 1951. Partial Index

*Treatment of Hyperthyroidism with 1-Methyl-2-Mercaptomidazole. J. Schermann and J. Affonso Escosteguy.—p. 463.

Treatment of Hyperthyroidism with Methimazole.—Schermann and Affonso Escosteguy administered methimazole ("tapazole") to 10 patients with hyperthyroidism. The patients were from 30 to 60 years old. The group was comprised of one patient with typical exophthalmic goiter, six with diffuse toxic goiter without exophthalmos, two with toxic adenoma, and one with recurrent hyperthyroidism, eight years after thyroidectomy. The patients were also given a barbituric sedative on retiring. Two patients were in remission after administration of daily doses of 100 and 50 mg. of propylthiouracil. Remission was maintained in these patients by the administration of methimazole in daily doses of 1 mg. for every 5 mg. of the previously given propylthiouracil. The six patients who had not had previous treatment, as well as two who reported failure of either iodide or propylthiouracil, were given methimazole in progressively diminished daily doses from 20 to 5 mg., and in rare cases from 30 to 5 mg. The dose was diminished as the patients improved. Remission was obtained in all cases after treatment for a period varying between two and five months. Although the number of cases is small and the time of observation very short, the results obtained were good. Methimazole is the most efficient antithyroid drug employed to date, being almost devoid of toxic reactions and allowing a control of hyperthyroidism at least as satisfactory as, and quicker than, with the other methods previously used. An exact scheme of doses and duration of treatment cannot yet be fixed.

Revista Clínica Española, Madrid

40:359-434 (March 31) 1951. Partial Index

Nitrogen Mustard in Multiple Sclerosis. J. Simarro Puig and J. Llor Casanovas.—p. 393.
*New Treatment of Pemphigus (Results of Application of Occlusive Bandages). J. Gómez Orbaneja.—p. 397.

New Treatment of Pemphigus.—Gómez Orbaneja reports on application of occlusive bandages under pressure in the treatment of pemphigus. The bandages were applied according to the method of Koch in the treatment of extensive burns. The treatment consists of application of lint in a form of trellis, the lint being soaked in an emulsion of sulfathiazole in olive oil (or in olive oil and water). The lint is covered with gauze and cotton to form a bandage 10 or 15 cm. thick, and the whole is fixed with wide strips of adhesive. In pemphigus, this bandage should cover the entire trunk and limbs. The bandage is removed after two weeks, and is reapplied two or three days later for another two weeks. As a rule, patients feel relief as soon as the bandage is applied. Appetite and general health improve. The skin appears normal when the first bandage is removed, but new small lesions may appear and will require application of a second bandage. In the patients reported on the diagnosis was confirmed by biopsy. All previous treatments, including suramin sodium (germanin), blood transfusions, diuretics, and thiosemicarbazone, failed. The Nikolsky sign was positive before the treatment and negative when the first bandage was removed. The treatment gave good results in all cases. In two patients who were followed up for more than one and one-half years after the treatment, the skin had been normal by the end of the treatment and is still normal. The Nikolsky sign is negative, and the general health is good. New pemphigus lesions did not appear.

Revista Médica Cubana, Havana

62:151-232 (March) 1951. Partial Index

*Brucellosis: Laboratory Autoinfection. V. Márquez Biscay and A. Fors Carbonell.—p. 151.
*Mammary Cancer in Young Girl. N. Puente Duany and C. García Ramírez.—p. 175.

Brucellosis: Laboratory Infection.—Márquez Biscay and Fors Carbonell report their own cases of laboratory brucellosis, which occurred after handling virulent cultures of Brucella suis and Brucella abortus for six days, despite all the usual precautions.

Two months later the workers complained of acute bronchial catarrh, which could not be controlled by any of the treatments in common use. One of the patients received an autovaccine, containing 100,000,000 catarrhal organisms from the respiratory tract. This vaccine had been previously given to the patient without producing reactions of hypersensitivity. However, on this occasion the vaccine caused an acute general and local reaction of hypersensitivity, with chills, tremor, general malaise, high fever, and headache. The local reaction was acute, and the bronchial catarrh became worse after administration of the vaccine. The reaction subsided but was repeated 10, 20, and 30 days later by administration of the vaccine in the same dose, half and one-fourth of the dose, respectively (100,000,000, 50,000,000, and 25,000,000 bacteria). The other patient received sulfadiazine, streptomycin, and penicillin in small doses with transient improvement of catarrh. In both cases brucellosis followed its typical clinical course for two months, when a certain diagnosis of brucellosis could be made from the hemogram, the erythrocyte sedimentation rate, the strongly positive agglutination to Brucella, and positive blood cultures with Brucella abortus. The opsonic index was very high all through the disease. The treatment consisted of aureomycin in daily doses of 2 gm., up to a total dose of 7.25 gm. in four days, and chloramphenicol (chloromycetin®) in daily doses of 3 gm., up to a total dose of 60 gm. in 20 days. Spectacular results were obtained within two days. The agglutinins slowly diminished and disappeared within six months. Cure has lasted up to writing, 10 months after treatment.

Mammary Cancer in Young Girl.—According to the authors, mammary cancer is very rare in young girls. The subject of this report was a girl 11 years old. The first symptom to appear was a fixed tumor on the tibia, simulating osteomyelitis. Roentgen examination showed local destruction of the bone. Biopsy showed undifferentiated epithelioma. Shortly after, a rapidly growing tumor appeared on the right breast, and enlarged lymph nodes appeared in the right inguinal region. Biopsy of the involved breast and of an inguinal lymph node showed the same type of epithelioma as that of the tibial metastases. The predominant symptom in this case was a large metastasis in the internal iliac fossa, with compression of the external iliac vein s the cause of enormous edema of the leg. Roentgen therapy d testosterone in large doses failed. Administration of nitrogen ustard in daily doses of 5 mg. for four consecutive days caused temporary improvement of the mammary tumor and of the metastases, but the symptoms became worse, together with the aggravation of the symptoms of metastatic cancer of the lung, later discovered by chest roentgenogram. The duration of the disease from appearance of the first symptoms up to death was nine months.

Riv. di Pat. e Clin. della Tuberc., Bologna

24:65-128 (March-April) 1951. Partial Index

*Tuberculin Reactions in Tuberculous Reinfection. G. Costantini and A. Alberani.—p. 65.

Some Modern Aspects of Tuberculous Allergy. M. Anzalone.—p. 76.

Electrocardiogram in Tuberculous Toxemia. T. Lubich and G. Faenzi. —p. 89.

Tuberculin Reactions in Tuberculous Reinfection.—A study of skin reactions occurring after intradermal injection of old tuberculin was made in 260 adults, of whom 57 were healthy members of a staff of a sanatorium, and the rest were patients hospitalized in the same sanatorium. Evaluation was based on the extent of the erythematous reaction. A reaction with a minimum diameter of 10 mm. was considered positive. Readings were made 24, 48, and 72 hours after the injection. Of 60 patients with the exudative type of tuberculosis, 47 gave positive and 13 gave negative reactions. Of 83 patients with the productive type, 70 gave positive and 13 negative reactions. Of 31 patients with chronic pulmonary tuberculosis, 20 gave positive and 11 negative reactions. Of 12 patients with adenopathy of the hilus, 10 gave positive and 2 negative reactions. Of 17 patients with pleurisy, 12 gave positive and 5 negative reactions. Many patients with tuberculous lesions gave negative reactions to the intracutaneous tuberculin test, despite the fact that influenza, malaria, neoplasms, and hepatic lesions, considered to be
anergizing factors in patients with tuberculosis, were not pres
Various theories have been advanced to account for the nega
tuberculin reactions given by patients with tuberculosis. Th
authors attribute great importance to the person's biolog
condition. Constitutional, genotypic, and endocrine factors, a
well as the autonomic nervous system, may not only be r
sponsible for different aspects of the various forms of tubercu
sis, but may also induce alterations of the allergic condition a
particularly of the allergic response of the skin. The natu
defense power against bacterial infection is hereditary and
specifically or nonspecifically linked with the biological con
tion of the person subjected to the tuberculin test. Today t
intracutaneous tuberculin test has lost much of its significa
with respect to prognosis and diagnosis of tuberculous foci in t
human organism. The problem needs to be revised.

Semaine des Hôpitaux de Paris

27:2443-2492 (Aug. 10-14) 1951. Partial Index

Contribution of Surgical Clinic of Innsbruck to Modern Surgery. Breitner.—p..2443.

*Significance of Gastrectomy with Isolation of Terebrant Duodenal U As Method of Preventing Biliary and Pancreatic Complications. Finsterer.—p. 2448.

Chronic Pneumonia and Its Treatment. von Denk.—p. 2452.

Exclusion Gastrectomy in Terebrant Duodenal Ulcer.—F
sterer again advocates his method of exclusion gastrectomy, f
described in 1918, for the treatment of terebrant duodenal ul
i. e., for an ulcer penetrating in the proximity of the duod
papilla, or penetrating the pancreas over the hepatoduod
ligament. The ulcer is left untouched, while the antrum is
tioned at about three fingerbreadths from the pylorus. A
the excision of the mucosa; closure is performed by suture. F
lowing resection of two-thirds of the stomach an end-to-
anastomosis is performed with the first jejunal loop accor
to the Finsterer-Hofmeister technique. This method has a do
purpose: it reduces the mortality rate of surgical treatmen
duodenal ulcer and it prevents complications that are likel
occur when excision of a terebrant duodenal ulcer is attemp
While death resulted in 20 of 615 cases of duodenal ulce
which surgical treatment was instituted during the period
to 1930, only 9 of 644 patients died who submitted to sur
intervention for duodenal ulcer during the period 1930 to 1
The author attributes this improvement in the mortality ra
exclusion gastrectomy and states that in a more recent s
of 250 patients with duodenal ulcer operated on by Plenk
Zeihmann, death occurred in only 3 (a mortality rate of 1.
He urges digital exploration of the extent of the ulcer follo
gastrostomy, and recommends exclusion gastrectomy in
of large ulcers, in which closure of the duodenum accordin
Bsteh's technique may not be feasible. He emphasizes that
frequent occurrence of considerable dilatation of the ston
involving nearly exclusively the antrum requires the remova
two-thirds to four-fifths, so that only the normal cardiac
remains. He advises against adding an enteroanastomosis to
end-to-side anastomosis between the stomach stump and
jejunum, because it might favor the occurrence of a jejunal pe
ulcer. Although exclusion gastrectomy with preservation of
pylorus represents a method of treatment only for excepti
cases of duodenal ulcer, it makes possible the definite elim
tion of the risks associated with complications such as perf
tion of the common bile duct at the floor of the ulcer
perforation of Santorini's duct.

27:2591-2626 (Sept. 2-6) 1951

*Endocrine Disturbances in Course of Cirrhoses: Hepatotesticular drome. J. Olmer, E. Gascard and C. Cros.—p. 2591.

Contribution to Study of Gynecomastia: Question of Role Playe Prolactin in Pathogenesis. H. J. Ernould, A. Fanard, C. Heus and Damiean-Gillet.—p. 2604.

Endocrine Disturbances in Cirrhosis.—Of 18 male patients
cirrhosis of the liver reported on by the authors in 1938, all
a female type of distribution of the pubic hair that is to
considered as a definite clinical sign of testicular insufficie
The present paper is a report of 11 additional male pati
between the ages of 32 and 68 with cirrhosis of the liver, al
whom again presented the female type of pubic hair. Gyn

nastia was present in only one patient. Determination of androgen and estrogen excretion in a 24 hour collection of the urine of these patients showed that in 10 of them the androgen excretion was between 9 and 10.5 mg., i. e., about the same as that observed in normal women. On the contrary, the estrogen excretion was either near to normal or slightly increased, and occasionally pronouncedly increased. The female distribution of the pubic hair in these cirrhotic patients is, therefore, the morphological manifestation of the reduced androgen-estrogen ratio. This clinical sign was observed constantly, and it also appeared simultaneously with the occurrence of the hepatic lesions or shortly thereafter. It may be an aid in differential diagnosis between fatty liver and hypertrophic cirrhosis in alcoholics. This sign also permits unification of all types of cirrhosis of the liver occurring in male patients in one and the same syndrome, i. e., in the hepatotesticular syndrome, which may be ranked with the general syndrome of adaptation described by Selye. Etiologically, the cirrhoses do not form an unequivocal group, since they may be infectious, toxic, endocrine, cardiac, pulmonary, splenic, or cryptogenetic, but an identical pathogenesis may be considered in all cases. Sensitization of the organism by an exogenic factor that produces the hepatic lesion must be assumed, because the hepatic cells as well as the hepatic mesenchyma are very sensitive to all types of attack. But this sensitization alone is not sufficient. The cirrhogenic process is elicited secondarily by the neuroendocrine system, through (1) excessive secretion of corticoids, (2) inhibition of secretion of testicular or adrenal androgens as a result of diminution of gonadotropic hormones, and (3) increase in estrogens, all of which aggravate the initial hepatic lesion. It is suggested that male patients with cirrhosis of the liver receive treatment with male hormone in addition to the classic treatment consisting in a high protein and carbohydrate and low fat diet, and in administration of sulfurated amino acids, lipotropic factors, and vitamin B, C, D, and E. The male hormone plays by itself an important part in the protein anabolism and thus not only in nutrition but also in cell and skin respiration, by favoring the metabolism of sulfur and of sulfurated amino acids.

South African Medical Journal, Cape Town

25:517-540 (July 28) 1951

Pott's Disease. C. J. Kaplan.—p. 517.
Carcinoma of Cervix: Treatment with Radio-Active Cobalt^{60}: Use of Ring Applicators. J. Wakley.—p. 523.
The Newer Antibiotics with Special Reference to Chloromycetin. J. S. White.—p. 526.

Radioactive Cobalt for Carcinoma of Cervix.—Comparing the physical properties of radium and radioactive cobalt, Wakley shows that radioactive cobalt has certain advantages over radium as a source of gamma rays for the treatment of cervical cancer. He describes the design, construction and loading of a radioactive cobalt ring applicator for use in treatment of carcinoma of the cervix. A radioactive cobalt wire is incorporated in the applicator. The measurement of the dose rate was carried out by direct calibration against a known quantity of radium.

Ugeskrift for Laeger, Copenhagen

113:957-982 (July 19) 1951. Partial Index

*Bronchiectases: Twenty-Seven Cases, 18 Treated Operatively. C. E. P. Buus and K. Røjel.—p. 957.
*Cancer of Biliary Tract: Possibility of Early Diagnosis and Radical Surgical Treatment. E. H. Larsen, H. Brocks and A. P. Gammelgaard. —p. 961.
Lesions Due to Motor-Cycle Accidents. O. Kapel.—p. 968.

Surgery in Bronchiectasis.—Buus and Røjel state that the results to date in their cases testify to the value of surgical treatment of bronchiectasis. The duration of the affection from the start of the specific bronchiectatic symptoms or after roentgenologic diagnosis to the time of admission averaged 46 weeks in the 18 patients operated on, 28 months in the 9 treated conservatively. In the first group, on follow-up after an average of 31 months, 1 patient was not traced, 1 was dead from an intra-abdominal disorder, 10 were well, 3 were definitely improved and able to work, 2 were almost completely recovered from the pulmonary symptoms but not fully able to work, and only 1 patient showed signs of progression of the bronchiectatic process in spite of operation. On follow-up of the nine patients not operated on, after an average of two years, one patient was not traced, two patients were dead from the pulmonary affection, and six were in unfavorable condition.

Early Diagnosis and Radical Surgical Treatment in Cancer of Biliary Tract.—Larsen and his associates report on 44 cases in 19 men and 25 women, 42 of tumors of the biliary tract, 26 of which originated in the papilla of Vater, and 2 of duodenal tumor macroscopically not distinguishable from tumors originating from the duodenal papilla. The most frequent initial symptom was jaundice, sometimes intermittent, which was followed by gastrointestinal symptoms, pain, fatigue, and anorexia; later there was jaundice in almost all cases. Enlarged gallbladder (Courvoisier's law) was found in 38% of the cases on external palpation, in 80% at operation. Roentgen examination may be useful in tumors of Vater's papilla. As a rule, definite clinical diagnosis is not possible. The most important method of examination in case of possible tumor in the pancreoduodenal region is exploratory laparotomy. Palliative operation does not prolong life. Probably about 46% of the tumors of Vater's papilla in this material and 38% of those of other parts of the biliary tract were operable on the first admission.

113:1009-1034 (Aug. 2) 1951. Partial Index

*Congenital Fibrocystic Disease of Pancreas: I. Review. P. Bastrup-Madsen and O. Mortensen.—p. 1009.
*Id.: II. Report on 12 Cases. P. Bastrup-Madsen and O. Mortensen. —p. 1014.
Establishment of Trypsin in Feces by Gelatin Film Test. O. Mortensen. —p. 1017.
Artificial Feeding of Children in Arctic Regions. P. H. D. Waagstein. —p. 1020.

Congenital Fibrocystic Disease of Pancreas.—Bastrup-Madsen and Mortensen state that congenital fibrocystic disease of the pancreas, a hereditary anomaly of development, occurs predominantly in infants, about equally often in the two sexes. Pulmonary symptoms are prominent. Diagnosis can often be made on the basis of the history and ordinary clinical examination. Examination of the duodenal secretion will reveal the inability of the pancreas to excrete enzymes, but collection of the secretion is often difficult or impossible in children. Examination of the proteolytic activity of the feces may be useful. Roentgen examination can support the diagnosis but is not decisive. The earliest recognizable manifestation of the disorder is meconium ileus in the newborn infant, which is treated operatively. The fully developed picture of the disorder, marked by failure to gain weight, foul, bulky, and fatty stools, constant cough, and recurring pulmonary infection, is usually seen in the first half year of life. The characteristic lesions are cystic fibrosis of the pancreas and bronchiectasis. Treatment is symptomatic. The pulmonary infection is as a rule the immediate cause of death, which occurs oftenest in the first year of life. The prognosis may not be so unfavorable as it seems today, as probably only the gravest and most typical cases are recognized. The disease is most readily confused with celiac disease, which, however, rarely occurs till toward the end of the first year of life and is not as a rule accompanied by pulmonary changes.

Congenital Fibrocystic Disease of Pancreas.—Of the 12 patients with fibrocystic disease of the pancreas treated from 1943 to 1951, in the Pediatric Division of Aarhus Municipal Hospital, 11 were children less than a year old, 1 was a child aged 3. In eight cases, diagnosis was confirmed at necropsy, in two it was supported by demonstration of defective proteolytic activity of the feces (film test), and in two the diagnosis was probable. The characteristic findings were failure to gain weight, fatty, foul, and bulky feces, and symptoms from the respiratory tract, with periodic fever. In four cases there was evidence of familial occurrence. Most of the children were treated with antibiotics. The average length of life after diagnosis was two months. Only one child, treated with aureomycin, was still living four months after discharge. The effect of penicillin seems doubtful, but treatment with aureomycin in two cases gave marked improvement.

BOOK REVIEWS

Frontal Lobotomy and Affective Behavior: A Neurophysiological Analysis. By John F. Fulton, M.D., Sterling Professor of Physiology, Yale University, New Haven, Conn. Cloth. $3. Pp. 159, with 21 illustrations. W. W. Norton & Company,, Inc., 101 Fifth Ave., New York 3, 1951.

This brief monograph represents the Thomas W. Salmon memorial lectures delivered by Dr. Fulton before the New York Academy of Medicine. The first chapter concerns the historical aspects of the relationship of the brain, particularly the frontal lobes, to animal behavior. The second chapter deals with the relation of the brain, particularly the hypothalamus and the cerebral cortex, to autonomic functions (principally visceral and vasomotor activities). Chapter 3 discusses the effect on behavior of ablation of various parts of the animal brain, while the fourth and last chapter concerns the results of frontal lobotomy in man.

This is an interesting little book and will prove valuable to many who are not too familiar with frontal lobotomy and its anatomic and physiological background. It is, however, somewhat superficial in its treatment of the subject and suffers from the fact that its author has had little first-hand experience with patients who have been treated in this manner. For this reason, he is dependent on the formal statements made in the literature regarding various observers' personal opinions and viewpoints. These do not always give a complete picture.

Clinical neurology and psychiatry are deeply indebted to Dr. Fulton, who has done more than almost anyone else to popularize the basic sciences of neuroanatomy and neurophysiology and to show the clinician their correlations with his clinical problems. He has done that again here. It may be the secret of Dr. Fulton's success that he has simplified his presentations and has not confused his clinical readers with experimental complexities and details beyond their knowledge and experience.

A Textbook of Medical Conditions for Physiotherapists. By Joan E. Cash, B.A., M.C.S.P. With foreword by Frank D. Howitt, C.V.O., M.A., M.D. Cloth. $5. Pp. 350, with illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., Lon- on, W.C.2; 2083 Guy St., Montreal, 1951.

author is a physical therapist who has attempted to write textbook for others in her profession describing the medical and neurological conditions encountered by physical therapists. The first section is devoted to a discussion of basic pathological changes. The other seven parts of the book are devoted to classifications and descriptions of diseases affecting the various systems of the body. In many instances the classifications used are oversimplified and not generally accepted. Certainly the discussions of the pathology involved should have been written by a pathologist. The applications of physical medicine to the various conditions described are presented briefly and in general terms. The few illustrations that are used are well selected. The plates have been well reproduced, and diagrams are clearly presented.

The material is not sufficiently covered to be a useful reference or textbook for student physical therapists. It is of no value for physicians in general or those specializing in physical medicine and rehabilitation.

Management of Celiac Disease. By Sidney Valentine Haas, M.D., Professor of Pediatrics and Director of the Department, New York Polyclinic Medical School and Hospital, New York, and Merrill Patterson Haas, M.D. Cloth. $5. Pp. 188,, with 12 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1951.

This monograph on celiac disease is the culmination of 25 years of clinical experience, research investigation, and digest of the medical literature by the senior author, prepared in collaboration with his son. Over half of the book is devoted to presentation of the many conflicting viewpoints advanced in explanation of this poorly understood disease since its first description in modern literature, 63 years ago. The literary review is done in a very orderly fashion and serves to develop a clear-
picture of the disease and the accumulated scientific facts a
opinions relating to it. An extensive bibliography is append
The authors then give their own experience with 370 cases whi
were carefully followed, tabulating various effects obser
after instituting treatment. The therapy found entirely satisf
tory and recommended here is strict dietary control, accordi
to carefully proved regimen over an extended period of tin
Finally, the authors discuss their etiologic hypothesis for t
perplexing disease, based on observed clinical facts as yet
supported by experimental data.

This book has concisely presented information of value
the practicing physician for the successful treatment of ce
disease, with an abundance of bibliographic references of in
est to all investigators in this and related disease fields.

**Atlas der pathologischen Anatomie: Eine Sammlung typischer Kr
heitsbilder der menschlichen Organe.** Von Dr.med., Dr.med. vet.
Robert Rössle und Dr.med Kurt Apitz. Cloth. 87 marks. Pp. 298,
564 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stutt
O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave.,
York 16, 1951.

This atlas is a welcome addition to the textbooks of pa
logic anatomy. It presents separate chapters dealing with
various organs except for skin, eye, and ear. The illustrati
for the most part colored, are accompanied by pertinent
scriptions and short, stimulating clinical allusions. The boo
designed not only as an introduction for the student but
as an instruction for any physician who begins to specializ
learning to view pathological changes and to describe accura
the findings. The value of this book, written by the present ne
of the German school of pathology, lies in the beautiful c
photographs, the brilliancy and clearness of which are sup
The reader gets the impression of dealing with actual mat
from the autopsy table. The specimens are impartially sele
and typical of the commoner diseases.

Of course, as would be true of any newly published atla
this type, later editions are likely to carry replacements for
few black and white photographs and to contain some n
uniformly characteristic colored pictures.

This rather inexpensive book is of great value even f
student not familiar with the German language, for the pict
speak for themselves.

Clinical Laboratory Methods. By W. E. Bray, B.A., M.D., *Professo*
Clinical Pathology, University of Virginia, Charlottesville. Fourth edit
Cloth. $7.25. Pp. 614, with 137 illustrations. C. V. Mosby Company,
Washington Blvd., St. Louis 3, *1951*.

This book covers a wide variety of clinical tests, inclu
many developed recently. The contents are gathered under
following chapters: general rules and examinations of valu
various cases, urinalysis, hematology, blood chemistry, gas
analysis, feces and intestinal parasites, puncture fluid and c
brospinal fluid examination, sputum, bacteriology, mycol
water and milk examinations, serology, basal metabolism te
allergy tests, poisons and foreign substances, surgical pathol
indicators, stains and removal of stains.

Spot checking of the directions for performing the tests
revealed several defects. In places the directions are incomp
and ambiguous, e. g., in the directions for storage of u
pending laboratory examination for ascorbic acid. In some
stances inexact and indefinite measurements are fostered
failure to specify container size and the use of such units
measure as "fingerbreadth." Examples of antiquated and inc
sistent terminology are exemplified in the ascorbic acid tolera
test, where the obsolete term cevitamic acid is predominan
used. In the test for ascorbic acid in blood, the terms vitamin
cevitamic acid, and ascorbic acid are all used in five short pa
graphs. Ascorbic acid does not appear in the index. Instead
referring to standard reagents available from such agencies
the U. S. Pharmacopeia, commercial products are suggested
reference standards.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

The illustrations are numerous and clear; there are directions for making up the reagents required; tables of equivalents, atomic weights, and normal values in healthy subjects are collected toward the end of the work; and the index seems adequate.

Causalgia. By Frank H. Mayfield, M.D., Assistant Professor of Clinical Surgery, College of Medicine, University of Cincinnati, Cincinnati. Publication number 58, American Lecture Series, monograph in American Lectures in Neurosurgery. Edited by Michael E. DeBakey, M.D., Professor of Surgery and Head of Department of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Kentucky. Neurosurgical Division. Editor, Barnes Woodhall, M.D., Professor of Neurosurgery, Duke Hospital and School of Medicine, Durham, North Carolina. Cloth. $2.25. Pp. 65, with 12 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

This small monograph deals with the subject clearly, concisely, and intelligently. The study is based on 105 cases of true causalgia seen in military service and treated by sympathectomy, plus a lesser untabulated number treated in civilian practice. The author emphasizes the opinion that causalgia is a clinical entity characterized by pain which is usually burning, and is associated with vasomotor and trophic changes; this entity follows injury to peripheral nerves. It occurs most frequently with injury to the median and sciatic nerves; however, other nerves may be involved. The probable mechanism is thought to be an interaction of impulses between sympathetic and sensory fibers at the site of injury.

The author is of the opinion that the pain can be relieved by appropriate sympathectomy. Procaine block of the sympathetic chain is a valuable diagnostic aid and may also be an effective therapeutic agent. Illustrations are added which show the commoner technics for procaine block and sympathectomy. The book is readable and the material is presented in refreshing style.

Micro-Arteriography and Other Radiological Techniques Employed in Biological Research. By Alfred E. Barclay, O.B.E., M.D., D.Sc. Cloth. $6.75. Pp. 102, with 46 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

This book is an account of Barclay's work at the Nuffield Institute of Medical Research, Oxford, in which he adapts and develops radiological techniques for use in the experimental laboratory. Particular attention is given, in an autobiographical nature, to the development of micro-arteriography. This book will be read with great interest by investigators interested in laboratory techniques intended for visualization of the vascular system.

The illustrations are deserving of a special commendation. These illustrations alone, showing micro-arteriographs of sections of a rabbit's kidney, the mucous membrane of the stomach, an arteriogram of the arterial supply of the testes of the Danna Wallaby, and others, should be of particular interest to the anatomist and physiologist. Because of the highly specialized nature of the techniques developed, this book will be utilized and appreciated mostly by those investigators concerned with visualizing the vascular system.

Atlas of Cross Section Anatomy of the Brain: Guide to the Study of Morphology and Fiber Tracts of the Human Brain. Fifth section of Emil Villiger's Brain and Spinal Cord, fourteenth edition revised by Eugen Ludwig, Professor of Anatomy, University of Basel. Atlas further revised by A. T. Rasmussen, Professor of Anatomy, University of Minnesota, Minneapolis. Cloth, loose-leaf. $5. With 63 plates. Blakiston Company (division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1951.

For many years medical students and others interested in studying the fiber pathways of the brain have turned to Villiger for reliable and well presented information. This is a reprint of that classic atlas. It is well done. In addition, Dr. Rasmussen has added 11 sagittal sections of the brain, which he has prepared from his own collection. This is a valuable addition to the cross-sections of the original work. Dr. Rasmussen has done much to aid the teaching of neuroanatomy as well as to instruct many students in this field personally. This is another of his worth-while contributions to the subject.

Medicinal Chemistry: Chemistry, Biochemistry, Therapeutic and Pharmacological Action of Natural and Synthetic Drugs. By Alfred Burger, Associate Professor of Chemistry, University of Virginia, Charlottesville. Volume I. Cloth. $10. Pp. 577. Interscience Publishers, Inc., 250 Fifth Ave., New York 1; Interscience Publishers, Ltd., 2a Southampton Row, London, W.C.1, 1951.

Chemists have for many years determined the structures of naturally occurring medicinals, synthesized compounds for possible use as drugs, and speculated on the relations between chemical structure and pharmacologic activity and on the exact mechanisms of the actions of drugs in the body. It is only recently, however, that medicinal chemistry has achieved status as a separate branch of chemistry.

Now that medicinal chemistry is recognized and medicinal chemists have a place on the research teams that develop, test, and put into production new pharmaceuticals, there is a demand for courses in the subject. Dr. Burger's is one of the first textbooks for such a course. Like any pioneer, Dr. Burger has had to collect and condense a vast amount of scattered material. The extent of his task is indicated by the number of references cited, even though he has not attempted to be complete. It is, therefore, not surprising that the work seems to be uneven. In the body, where he deals with classes of drugs—general and local anesthetics, hypnotics and sedatives, anticonvulsant drugs, analgetics, analeptics, cardiovascular drugs, parenteral fluid therapy, diuretics, anticoagulants, drugs affecting the gastrointestinal tract, expectorants, adrenergic drugs, adrenergic blocking agents, parasympathetic stimulants, curare and curariform drugs, antispasmodics, histamine and antihistaminic drugs, diagnostic agents, thyroxine and antithyroid drugs, drugs for the treatment of cancer and the vitamins—the work is clear and interesting. In the introductory chapters—on the relationships of biological activity to chemical structure and physical properties, the biological study of drugs, and the restricted response of cells to drugs—the work often is involved, unclear, and out-of-date.

Special mention should be made of the interesting chapter dealing with the history of medicinal chemistry, which contains a long chronological table, starting with 1850, summarizing chief developments. Complete structural formulas are used wherever required throughout the text. Generic and full chemical names are employed in the body of the work; however, in the index, trade names of drugs also are included and are distinguished from generic names by the use of ®. Three introductory pages tell the difficulties arising from the present confused state of drug nomenclature.

The text has faults in organization, grammar and logic, as well as a few "printer's errors." However, these should not greatly handicap the student already well grounded in biological sciences and chemistry. The printing and binding are good.

Chronology of Ophthalmic Development: An Outline Summary of the Anatomical and Functional Development of the Visual Mechanism Before and After Birth. By Arthur H. Keeney. Publication number 99, American Lecture Series, monograph in American Lectures in Surgery. Edited by Michael E. DeBakey, M.D., Professor of Surgery and Chairman, Department of Surgery, College of Medicine, Baylor University, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Kentucky. Ophthalmology Division. Editor, Donald J. Lyle, M.D., F.A.C.S., Professor of Ophthalmology, College of Medicine, University of Cincinnati, Cincinnati. Paper. $2. Pp. 22, with 3 charts. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

This small paper-covered booklet is issued as publication no. 99 of the American Lecture Series, with Dr. Donald J. Lyle serving as editor for the ophthalmology division. The text is limited to a few pages of introduction and a listing of the functional development of vision and binocularity from the third fetal month to the ninth year of life. The major contribution of this publication lies in the three large tables showing the development of various portions of the eye and orbit during prenatal and postnatal life, making possible a correlation between the development of the various parts at any given period.

The author does not claim to have added much that is new, but he has succeeded in placing this embryological and developmental material in a conveniently accessible form. To one with some knowledge of ocular embryology, it is a publication of value for reference and review.

QUERIES AND MINOR NOTES

TRAINING TABLE DIETS AND SWIMMING

To the Editor:—*Please discuss athletic training table diets for both aquatic and land sports, giving specific suggestions for the meal immediately preceding an athletic event. Also give me information on the difference between muscular training in aquatic sports and that in land sports. Some swimming coaches eschew intensive "dry" exercise because it "tightens the muscles."* *M.D., Michigan.*

Answer.—"The Trainer's Bible," by Dr. S. E. Billik (New York, T. J. Reed and Company, 1946), is one of the few books on athletic training prepared by a medical writer. It contains a chapter on "Diet in Athletics."

In general the best diet for the athlete is the same good diet as that recommended for any person of like age with a similar work output. There is a dearth of scientific information relative to the kind of meal most desirable immediately preceding an athletic event. Available evidence appears to indicate that severe exercise in itself has little effect on digestion but that the strong emotions connected with competition in even the milder types of sports may upset digestion and impede high-level performance. Consequently coaches prefer that their athletes eat two to three hours prior to game time, the meal consisting of easily digested foods that at the same time will furnish the energy necessary for strenuous physical activity. A typical pregame menu might include lean meat or eggs, baked potato or toast, milk, tea, coffee, or cocoa, and fully ripe fresh fruits. Since the passage of food through the gastrointestinal tract generally takes more than 24 hours, it is considered desirable to omit foods containing large amounts of roughage, such as fibrous vegetables, from the diet during this period. Individual preference for and eaction to various types of foods are most important, and the ods one is accustomed to must be taken into account. As a eral rule the high-strung, sensitive type of athlete will be ppiest with a lighter meal eaten longer in advance of a contest than will his less emotional teammate. There is, as far as known, no reason to recommend differentiation of these principles for land and aquatic sports.

Swimming coaches place great emphasis on relaxation. The ability to attain a completely relaxed style has been labeled by some successful coaches as the key to good swimming. Consequently there has been a feeling that, while stretching exercises, especially during the early training season, can be helpful, any exercises requiring muscles to maintain fixation in a shortened state under tension for prolonged periods would be contraindicated during the competitive season. In general, training for one skill makes little contribution to performance in a different skill. There are differences in speed, force, and pattern of movements with each skill demanding varying neuromuscular discriminations and organic adjustments. Training for one sport and even for events or positions of that sport are specific to the sport and its events or playing positions. For this reason the best training for swimming is swimming and the best training for its events is training for particular distances and kinds of strokes. While swimming does not demand great strength, a high degree of strength will allow the use of less musculature for each stroke and permit the swimmer to maintain a higher speed over a longer time. Therefore, heavy developmental exercises out-of-season have been found useful in bettering swimming performance. However, the use of such activities to improve strength and endurance should be confined to periods between competitive seasons.

PREGNANCY AFTER FIRST ACT OF INTERCOURS

To the Editor:—*What is the possibility of a girl's becomi pregnant the first time she has intercourse? Do most girls fi this first experience painful even though the hymen has be broken in an instance other than intercourse? What are t possibilities of a girl's becoming pregnant the 21st day follo ing the first day of her last menstruation?* *M.D., Nebraska.*

Answer.—A girl may become pregnant the first time she h intercourse if she has ovulated recently or if she ovulates so after intercourse and if the coital partner is fertile. Most girls not find the experience painful if the hymen has been ruptur and stretched adequately to admit the penis. This, of cour brings up many problems. Psychic elements may cause the to experience pain, especially if the experience is against her w

Ovulation probably may occur at any time in the cycle certain occasions and it possibly may occur with intercourse in the rabbit) but the best proof available today would indic that ovulation more frequently occurs about 14 days bef the expected menstrual period and that this concept is m accurate than any method of determining ovulation followin period. In other words, the menstrual period per se does cause ovulation but ovulation causes menstruation in about days unless pregnancy supervenes.

In a series of patients operated on by Dr. John Brewer, ov tion was found to occur at most any time in the cycle, bu was uncommon both early and late; as the midportion of cycle was reached, ovulation was found to have occurred larger numbers; the peak was reached in the midportion o 28-day cycle, or 14 days prior to menstruation.

The age of the patient was not stated. It is believed that m girls do not ovulate for a year or two after the onset of so-cal menstruation but that the periods are a form of anovulat bleeding which may last a short or long period until regu ovulation occurs, leading to a regular menstrual cycle.

A woman could become pregnant on the 21st day follow her last period if her cycle were 35 days—in other words, would be the 14th day before the expected period—or ovulat could have occurred on the 21st day of a regular cycle. exact statement is difficult to make, because, if pregnancy occ one never knows when the period would have occurred.

HYSTERECTOMY

To the Editor:—*A woman, 50, was operated on for bleed fibroids. The surgeon did a total hysterectomy. The cervix the ovaries were normal. Is the cervix important for the s port of the pelvic floor? Would it not be more proper to m a subtotal hysterectomy and not remove the ovaries?*

M.D., New York

Answer.—There is disagreement on both of these subje The vaginal total hysterectomy without plastic procedures a the total abdominal hysterectomy are considered by some safest procedures with respect to morbidity and mortality. T supracervical or subtotal operation is attended with the high morbidity, because in this operation one cuts across the cerv an organ frequently harboring infection. One practically nev sees a normal cervix even in a virgin; most of them show e dence of endocervicitis on microscopic section. The cervix is no importance in the support of the pelvic floor and neither a the round ligaments. The cardinal and uterosacral ligamen are apparently important in the support of the pelvic floor.

One does not usually leave the cervix in a vaginal hyst ectomy, so that there would seem to be no reason for leavi it in when removing the uterus from above. Much of this d agreement arises from failure to evaluate the amount of relax tion before surgery. This can easily be done by having the patie

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

in down with a tenaculum pulling on the cervix. Often, if patient stands up and strains with the tenaculum pulling on cervix, considerable degrees of prolapse will be elicited. If ent, then plastic procedures can be employed to support the ic floor. Vaginal hysterectomy, combined with vaginal plastic edures, is commonly employed even with morcellation of tumors if necessary. Occasionally it is expedient to start the erectomy vaginally, amputate the cervix, complete the plas- procedure, and then remove the large tumor and fundus minally. Carcinoma of the cervical stump is one reason routinely removing the cervix.

areful questioning of patients subjected to complete hyster- my reveals that the cervix apparently plays no part in the yment of intercourse, nor is it necessary for lubrication. The ition of whether to remove the ovaries causes much argu- t. Many do not believe in removing the ovaries unless they diseased. Others believe in removing them after age 45. iaps a better rule would be to remove them only after the opause was over.

ERGY

THE EDITOR:—*Where can I get the best materials for testing itients for etiology of allergy. Since I am in general practice lease discuss relative values of one type of testing, e. g., tradermal, as against patch testing. What can be done when e allergic symptoms are activated by "colds"? Where can ne procure the most reliable type of material for specific esensitization, e. g., food desensitization?*

M.D., Pennsylvania.

NSWER.—1. Satisfactory extracts for allergy testing may be iined from several laboratories. Among these are Abbott ioratories, North Chicago, Ill.; Arlington Laboratories, ıkers, N. Y.; and Hollister-Stier Laboratories, Spokane, sh. 2. Patch testing is done only when contact dermatitis nvolved. For the atopic allergies (e. g., asthma, hay fever, atopic dermatitis) either scratch or intradermal testing is cated. Scratch tests are less painful, are quicker, show a ıer correlation with clinical findings, and are safer. Intra- nal tests are more sensitive and may thus enable one to e specific diagnoses when scratch tests fail; however, they dangerous, particularly in the hands of other than experts, should be preceded by scratch tests. For more detailed com- son of the two methods the reader is referred to a work by iberg (Allergy in Practice, ed. 2, Chicago, The Year Book lishers, Inc., 1946).

. It is presumed that the inquirer has in mind the procedure prevention of asthma following colds. In such cases, as soon cold is evident, small doses of ephedrine and iodides may ent the onset of severe asthma. A course of treatment with ccine made from the usual bacterial flora of the respiratory t may minimize the bacterial inflammation in the bronchi ndary to colds and may thus prevent asthma. When an rgic etiology is present (inhalant substances or foods), the ination of these agents frequently deprives the colds of their ma-producing tendencies. 4. The same source can supply acts to be used in desensitization and in diagnosis. Food de- sitization should not be done hypodermically, unless the food the form of a dust, such as flour, which is a cause of asthma akers. If desensitization to food is required, the oral method tilized, the patient ingesting small and gradually increasing ounts of the actual foods daily.

RTS OF THE TONGUE

THE EDITOR:—*I would like to know how much formaldehyde could use in honey for venereal warts of the tongue and nouth as a swab. I have tried aureomycin and penicillin with o results.* *Albert C. Lundgren, M.D., Minneapolis.*

NSWER.—Formaldehyde is used usually in concentrations 3% to 10% and should be used with great caution on an a such as the tongue. Lynch and Karon, who recently re- ted on a large experience with the use of formaldehyde oint- nt for warts (*Arch. Dermat. & Syph.* 62:803 [Dec.] 1950) ed that it should not be used for condylomas; they prefer lophyllum resin instead.

OXYGEN CONTENT OF ARTERIAL BLOOD

TO THE EDITOR:—*Has there been any improvement in apparatus and method for analyzing arterial blood for oxygen concentration? What would be the clinical symptoms of a 90, 85, 80, 75, 70, 65, and 60% concentration? Has any research been done with animals to determine how low the oxygen saturation would have to go to cause death? What drop in arterial blood oxygen would there be if a person held his breath for one minute? What would be the usual blood oxygen in a patient dying from anoxia? Would there be any drop in blood oxygen in extreme physical exhaustion?*

T. A. Taylor, M.D., Lufkin, Texas.

ANSWER.—1. The methods used for determining oxygen content of arterial blood are both direct and indirect. The Van Slyke and Neill method on drawn blood is still standard and, when properly executed, is accurate to ±0.1 vol. %. The recent Scholander micromodification is quicker and simpler and requires as little as 0.1 ml. of blood; it is sufficiently accurate for most purposes. Indirect determinations can be made on arterial blood in the intact ear by the use of the oximeter, a photoelectric device having an accuracy in the range of plus or minus 5 to 10%.

2. Clinical symptoms of normal subjects breathing low oxygen mixtures are essentially as follows, when related to arterial oxygen saturation: 90%—no symptoms (but there is impairment of night vision and the appearance of slow waves in the electroencephalogram; 85%—central nervous system symptoms of euphoria, impairment of judgment, sleepiness, headache, dizziness, personality changes resembling alcoholic intoxication, incoordination of finer muscular movements, shrinking visual fields, increase in heart rate and respiration, and beginning cyanosis; 80-70%—above symptoms and signs progressively exaggerated; and 65%—hyperventilation alkalosis, often with tetany or convulsions, collapse, and coma. A small proportion of persons would die after perhaps 30 minutes. These are average effects on normal persons during acute exposure. Slowly developing hypoxia brings into play processes of acclimatization, and clinical states involve variables that make effects relatively unpredictable.

3. Most animals withstand hypoxia better than man. In normal humans, under the above conditions and subject to the same qualifications, the lethal range of arterial oxygen saturation lies at about 50 to 65%.

4. Holding the breath for one minute or exercising to extreme physical exhaustion lowers arterial oxygen saturation to about 90%, which corresponds to an arterial oxygen content (assuming 15 gm. % hemoglobin) of about 18 vol. %.

MECHANICAL URTICARIA OR EDEMA

TO THE EDITOR:—*A male patient has a traumatic allergy. If he uses a hammer, his hands swell so that he cannot grasp the hammer. If a weight is placed on his shoulder, such as a carrying bar, the same swelling occurs. If he lies on his side to repair a piece of machinery, his thigh becomes swollen. Since he is a mechanic the condition is serious to him. What treatment can be given? He has been to one of the larger medical clinics, and they have advised work that is less traumatizing, but this is not feasible economically.* *M.D., Indiana.*

ANSWER.—The condition described is related to dermographism and to other types of physical hypersensitivity. It is doubtful that this is a true allergy, i. e., a specific antigen-antibody reaction. More likely it is an exaggerated expression of a normal phenomenon. If the trauma is intense enough (catching a fast-pitched baseball with the bare hand, or striking the skin with the old hickory rod) a swelling or welting will be produced. Some persons respond similarly to milder mechanical stimuli. The swellings in both instances are thought to be produced by increased capillary permeability and serous effusion due to release of histamine by the trauma. Antihistamines used prophylactically may be helpful. Vasoconstrictors, particularly ephedrine, may also help. It is possible that rutin or large doses of vitamin C might also be effective.

DIABETES IN CHILDHOOD

TO THE EDITOR:—*In April, 1951, a previously healthy 8½ year old boy had nocturnal enuresis of three weeks' duration. Urinalysis showed above 2% sugar and 1+ acetone. Blood sugar during the following two weeks ranged from 215 mg. per 100 cc. fasting to 400 mg. in the third hour of a glucose tolerance test. Blood sugar in the fourth hour of this test was 291 mg. The only other finding was moderate suppurative nasopharyngitis, requiring penicillin administration. Glycosuria was controlled with a 2,000 calorie diet containing about 200 gm. of carbohydrate, 65 gm. of protein, and 100 gm. of fat, with 30 units of protamine zinc insulin each morning. There has been minimal acidosis. During his post-hospital observation, he occasionally had symptoms of hyperinsulinism, with afternoon blood sugar level as low as 55 mg. The dose was steadily decreased to five units of protamine zinc insulin daily, with the same diet. An occasional blood sugar reading with, or without, this small insulin dosage in the subsequent weeks varied between 70 and 140 mg. The patient's weight has varied no more than 2 lb. (0.9 kg.) in the past six weeks, and has beeen around 68 lb. (30.8 kg.); his height is 50 in. (127 cm.). Does this rather wide fluctuation in the clinical picture represent a remission in true diabetes mellitus or are there known occurrences of transient pathology in the pancreas followed by complete restoration of function? There is no diabetic family history.*

L. Maxwell Lide, M.D., Florence, S. C.

ANSWER.—This child has diabetes, and diabetes as yet is not curable. Insulin is needed by every diabetic child. Frequently, if the case is diagnosed early and aggressively handled, children do especially well, so well that even those with long experience with diabetes are deceived. Umber noted years ago the good effects of *überinsulinierung*—overinsulinization—and Brush wrote about it, advising it, but unfortunately he has not published a subsequent paper. Repeatedly one is tempted to give up insulin. This should definitely not be done in a case like this. Insulin should be continued, even if only token dosage is used. The present diet, carbohydrate 200, protein 65, fat 100 gm., is good; the carbohydrate restriction should be continued for life, with protein and fat adjusted as necessary. It would be helpful to other physicians if the questioner would report this case in this section in six months.

PRURITUS ANI

TO THE EDITOR:—*A patient complains of pruritus ani, occurring several times a day. He has the sensation of wanting his bowels to move, but when he tries to have a bowel movement he is unsuccessful and the anal region becomes moist. This irritates him very much. Anal and rectal examination including a sigmoidoscopy is almost normal. I would appreciate suggestions.*

M.D., Texas.

ANSWER.—The sensation of "wanting his bowels to move" probably indicates the presence of feces in the rectum. The unsuccessful bowel movement may indicate muscle spasm. The leakage of mucus and pruritus ani are characteristic in many cases of fecal retention. However, in these cases there usually is a local pathological condition, such as cryptitis and papillomas. This condition may appear relatively minimal to the casual examiner. It is therefore important that a careful anal, rectal, and sigmoidoscopic examination be performed. Particular attention must be paid to the crypt area. Evidence of inflammatory change in the crypts would indicate the necessity for surgical intervention. Spasticity of the musculature, or pectenosis (a scar tissue band overlying the muscle and preventing proper relaxation) may be etiological factors.

It is impossible to advise therapy without adequate diagnostic study. However, if there is fecal retention, an instillation of mineral oil, about 3 oz. (90 cc.) before attempting defecation, will usually result in a successful, painless, non-irritating bowel movement. It is best not to take oil by mouth in these conditions. The oil leakage becomes a source of irritation. The oil instillation described may be given by an infant-type bulb syringe and a well-lubricated rectal catheter. The oil need not be retained, but may be immediately expelled.

The perianal area must be kept continuously dry and After each bowel movement it should be washed with water and a bland, non-perfumed soap. It should then be or washed with cold water and patted dry. Toilet tissue never be used. The area should then be powdered with starch powder and such powder and a powder puff carried during the day for repeated application. All local patho lesions should be removed concurrently with the above ment. If response to this therapy is inadequate, consultation a proctologist should be sought.

CONGENITAL ARTERIOVENOUS FISTULAS

TO THE EDITOR:—*A 39 year old woman has a cong aneurysm involving the vaginal and middle hemorr branches of the right hypogastric artery. The aneurysm about 3 in. in its largest diameter, and a strong pulsation felt through vaginal and rectal walls. I should apprecia formation about case reports on surgical removal of a h gastric (or internal iliac) aneurysm.*

Arthur J. Lesser, M.D., Los Ange

ANSWER.—Congenital arteriovenous fistulas may occu any location, but a report of this condition at the site ment has not been found. It has been known to follow prol labor, in which case it would be of traumatic origin like arteriovenous aneurysms. It is possible that this condi as a hemangioma and progressed to a type of arteriov aneurysm with multiple communications. If such is the ca excision might well be extremely hazardous or even In any event, excision should be attempted only after temp occlusion of both hypogastric (internal iliac) arteries.

CAUSE OF BARTHOLINITIS

TO THE EDITOR:—*I have seen several cases of bartholin single women aged 40 to 45. Some physicians say th disorder does not occur in single women. Textbooks sta it is gonorrheal in origin in 75% of cases. Please clari present attitude of gynecologists on the cause of this tion. Do they believe it occurs in single women o morals?*

M.D., Ill

ANSWER.—Almost all gynecologists are agreed that th mon infecting organism in bartholinitis is the Gonococc that a small proportion of cases is due to other organism as the Staphylococcus, diphtheroid organisms, Bacillus c and, though rather rarely, such parasites as Trichomonas alis. Statistics on the incidence of the various groups do no to be available, but it seems that the gonorrheal group up more than 75%. Gonorrheal bartholinitis can certainly in single women, since the gonococcus is no respecter of marriage vows, and other infectious organisms may be in either the married or the single, even those of good

SENSITIVITY TO IODINE

TO THE EDITOR:—*A patient has a dermatologic iodine tivity, sufficiently severe so that use of an iodized prick powder once caused severe dermatitis. There are clini dications for cholecystography. The result of a conju test with iodopyracet (diodrast®) is negative. Please ad to the dangers of reaction if oral cholecystography formed with iodoalphionic acid.*

M.D., Virg

ANSWER.—Reactions due to hypersensitivity to iodine, usually mild, may sometimes be very severe. In fact, ther been a few fatal reactions recorded. The administration of in this case, even though the result of the conjunctival negative, would be hazardous and open to criticism.

CORRECTION

Chlorophyll and Chlorophyllin.—In the query and answ titled "Chlorophyll" published in THE JOURNAL, Septem page 99, the term "chlorophyllin" should have been used i of "chlorophyll." Chlorophyll as it naturally exists in pl an oil-soluble substance, relatively unassimilable in the al tary tract. Chlorophyllin is a water-soluble salt of chloro

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ANAGEMENT OF OCCLUSIVE ARTERIAL DISEASES OF THE EXTREMITIES

Fay LeFevre, M.D., Cleveland

Arteriosclerosis obliterans and thromboangiitis oblit- ns are the two most important occlusive peripheral scular diseases. The former occurs predominantly in e older age group of either sex, and the course of the sease is accelerated by the coexistence of diabetes mel- us. The latter occurs almost exclusively in young men. e end result of both diseases can be total disability. is, in part, may be modified by early recognition and reful management. Although arteriosclerosis obliterans d thromboangiitis obliterans differ pathologically, the sulting symptoms and signs are caused by arterial in- fficiency. Certain phases of treatment, therefore, apply both diseases. It was recognized many years ago that tients with occlusive arterial peripheral vascular dis- se should be instructed to (1) avoid trauma; (2) avoid posure to cold; and (3) avoid tobacco. These are basic inciples that apply to the treatment of both diseases any phase. It is convenient to consider treatment in ree categories.

PHYSICAL MEDICAL MEASURES

The application of local heat to the extremities is a ysical medical procedure which deserves careful evalu- ion. Excessive heat on the extremities increases the etabolic demand for a greater blood flow, and rapidly pletes the available tissue nourishment. In the presence arterial insufficiency the increased demand caused by e excessive heat cannot be supplied. Ischemia and the ndency toward gangrene therefore are increased. When irect heat is applied locally to a limb with decreased terial circulation, no type of high-temperature heating pparatus should be used. These include short wave dia- ermy, electric bulbs, and infrared heat, as well as hot- ater bottles and hot foot soaks of medicated or non- edicated solutions. Heat may be applied safely to a mb only by means of one of the accepted thermostat adles. The temperature should never exceed 95 F.

A helpful means of determining the safety of direct eat is the caudal or lumbar parasympathetic nerve block. If a rise in temperature of 4 F or more following the block is noted, controlled heat is probably safe and may be comforting. If there is no temperature elevation following the block, the use of heat would undoubtedly be painful and frequently injurious. In contrast to direct heat, the application of reflex heat is a safe method and may be beneficial in the treatment of patients with occlusive arterial disease. This may be applied by means of the sitz bath or use of a heating pad or heat cradle over the abdominal and lumbar regions. Short wave diathermy may be applied safely when used reflexly. The electric blanket has some merit, especially in the treatment of patients who have night cramps of vascular origin. It has been my and my colleagues clinical experience that heat is not an effective therapeutic agent when applied directly to a limb with reduced arterial circulation. My colleagues and I use a well-constructed cradle, free from side braces, over the foot of the bed. This is covered with blankets, and the legs are encased in full-length loose-fitting stockings. Lamb's wool applied around the limbs as suggested by Samuels [1] is also an effective way of retaining warmth. If possible the room temperature should be 80 F or above. This method can be carried out safely either in the home or the hospital.

Some patients with severe arterial insufficiency are relieved of their pain by the application of cold. In these patients gangrene usually develops, and they require surgical intervention regardless of treatment. Use of cold as a preoperative form of relief is beneficial but should not be employed with the expectation of saving the limb.

Vascular exercises as suggested by Buerger and Allen have been employed by many physicians as a routine form of vascular therapy. The value of these exercises has never been determined physiologically, and E. V. Allen [2] doubts their importance. Wilkins [3] and associates recently have reported evidence which indicates that the standard exercises may not only be valueless but actually harmful. They investigated the effect of the dependent position on blood flow in the limbs. By means

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From the Cleveland Clinic and the Frank E. Bunts Education Institute.

Read before the Section on Internal Medicine at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] Samuels, S. S.: Management of Peripheral Arterial Diseases, New York, Oxford University Press, 1950.

[2] Allen, E. V.; Barker, N. W., and Hines, E. A., Jr.: Peripheral Vascular Diseases, Philadelphia, W. B. Saunders Company, 1946, p. 748.

[3] Wilkins, R. W.; Halperin, M. H., and Litter, J.: The Effect of the Dependent Position upon Blood Flow in the Limbs, Circulation 2: 373 (Sept.) 1950

of determining the arteriovenous oxygen differences based on the Fick principle, they were able to determine variations in peripheral blood flow in relation to position. This study demonstrated an increase in blood flow when the limb was in a dependent position of about 15% over the blood flow when the limb was in a horizontal position. In addition, they demonstrated a large increase in the arteriovenous oxygen difference in the presence of slight muscular activity. It could be concluded that any postural exercises designed to increase the peripheral circulation should be carried out only if muscular tension is avoided. Active muscular exercise as suggested in the standard Buerger-Allen procedure appears undesirable.

The study of Wilkins may explain in part the clinical effectiveness of the Sanders oscillating bed. During this maneuver the patient lies quietly in bed and is completely free from muscular tension. The Sanders bed, in our experience, has endured the test of time and appears to be one of the best mechanical devices available for the treatment of occlusive arterial disease. It is especially effective for the treatment of edema and for rest pain.

Prior to the report of Wilkins it was noted clinically that patients with vascular insufficiency were usually more comfortable when the limbs were in the dependent position. It has been our custom to elevate the head of the bed 6 in., thus allowing the legs to be slightly lower than the trunk. Patients with rest pain usually sleep with relative comfort in this position. Any attempt to elevate the limbs, even for a few seconds, frequently results in pain. Although not as effective as the oscillating bed, this simple maneuver can be carried out easily in the hospital or home. In the presence of significant edema it may be contraindicated.

The whirlpool bath, in our experience, is helpful in treating certain ulcerated lesions. It must be carefully ed, however, regulating the time and temperature, and eration of tissue must be avoided. It is helpful in y removing crusts and necrotic tissue. It has no ace in the routine treatment of patients with vascular insufficiency without ulceration and can in no way alter *intermittent claudication.*

Some time ago my colleagues and I discontinued the use of other mechanical devices, such as the venous rhythmic constrictor and the positive and negative suction apparatus. In our opinion little help, if any, resulted from prolonged application. The physical medical measures as outlined apply equally to arteriosclerosis obliterans and thromboangiitis obliterans.

SYMPATHETIC NERVE BLOCKS AND SYMPATHECTOMY

Lumbar paravertebral sympathetic procaine hydrochloride (novocain®) blocks have been used for a long time as a diagnostic aid and therapeutic measure. This procedure is of value in determining the degree of vasodilatation that may occur and is, therefore, helpful in deciding whether or not sympathectomy may be indicated. It is not infallible, however, and should not b
used as the sole criterion for sympathectomy. As a th
peutic agent my colleagues and I have, in general,
placed the use of repeated blocks with sympathecto
when there are no existent contraindications to surg
In our experience a caudal block is a more effec
therapeutic procedure than lumbar paravertebral sym
thetic blocks. A single injection will replace mult
lumbar injections, which frequently do not reach
proper source. A good vasodilating response may
recorded along with immediate relief of pain. T
cubic centimeters of 1% procaine hydrochloride solu
is injected into the caudal canal. This enters the s
epidural space and penetrates the motor and sen
nerve roots plus the white and gray sympathetic r
This method produces a bilateral effect which, for
nostic purposes, may not be desirable. My colleagues
I have also resorted at times to continuous caudal
thesia. In the presence of a painful ulcerated lesion
edema of the foot, it is almost impossible to reliev
edema without some leg elevation. Without anest
this cannot be accomplished. When the swelling
duced, the circulation improves and the severe pain
may be interrupted. Nerve block by one method
other is essentially helpful in (1) temporarily reli
pain, (2) determining the value of sympathectomy
(3) as a form of therapy when surgery is contraindi

Sympathectomy is a valuable procedure in the
ment of peripheral vasospastic arterial diseases, su
Raynaud's disease. Its use in cases of organic occ
disease presents a different problem, and there ar
differences of opinion regarding its value. DeBa
and associates have pointed out that treatment shou
directed toward vasodilatation of the local extr
involved rather than vasodilatation of the entire va
system, such as results with the use of certain me
tions. Ray, Burch, and DeBakey [5] point out that sy
thectomy conforms to the concept of hemodyn
known as the borrowing-lending phenomenon, or h
metakinesis, which stresses the importance of fl
tions in the blood volume. This physiological mech
permits vasodilation in one area and vasoconstricti
another to occur simultaneously. The sympathetic
ous system is important in this reaction.

In properly selected cases it has been my exper
and that of my colleagues that sympathectomy usua
sults in an immediate rise in the skin temperature
limb involved. This elevation reflects increased cu
ous blood flow, which is very important in the trea
of ulcerated lesions and impending gangrene. Imp
ment in cutaneous circulation is also important in pa
without ulceration, since it obviously gives them a
greater margin of safety should trauma occur. F
to improve intermittent claudication may be due
lack of vasodilatation that occurs in the vessels sup
muscle tissue. If the major vessel is occluded comp
by disease, one cannot anticipate the occurren
significant vasodilatation to alter muscle blood flow
improving walking distance. Leriche [6] has pointe
that sympathectomy may be a failure in cases of th
boangiitis obliterans when both the artery and vei
thrombosed. Sympathectomy will then only limi
area of gangrene.

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[4] DeBakey, M. E.; Creech, O., and Woodhall, J. P.: Evaluation of Sympathectomy in Arteriosclerotic Peripheral Vascular Disease, J. A. M. A. **144**: 1227 (Dec. 9) 1950.

[5] Ray, T.; Burch, G. E., and DeBakey, M. E.: The "Borrowing-Lending" Hemodynamic Phenomenon (Hemometakinesia) and Its Therapeutic Application in Peripheral Vascular Disturbances, New Orleans M. & S. J. **100**: 6 (July), 1947.

[6] Leriche, R.: Causes of Failure of Suprarenalectomy and Ganglionectomy in Thrombo-Angiitis Obliterans on the Basis of 898 Operations, Angiology **1**: 432 (Oct.) 1950.

Sympathectomy is a surgical procedure of merit in the management of occlusive arterial disease of the extremities. My colleagues and I advocate the criteria suggested by Pratt,[7] who stated that sympathectomy may be important in the stimulation of collateral circulation, provided certain prerequisites are met. These are (1) the patient has given up smoking completely and permanently; (2) conservative measures have been given an effective trial with progression of the disease; and (3) in certain instances sympathetic nerve blocks have resulted in clinical improvement with a consequent rise in skin temperature. This last requirement is modified frequently because of the excellent results apparent after sympathectomy despite limited results with the block. In our experience patients with thromboangiitis obliterans respond better to sympathectomy than those with arteriosclerosis obliterans.

MEDICAL MEASURES

In discussing medical measures the importance of local foot hygiene should not be minimized. Samuels [8] has commented recently on the reduction of the number of cases of thromboangiitis obliterans observed in recent years. He suggests that this may be due to improved treatment of fungus diseases of the feet during World War II. He also postulates that a single and as yet unidentified fungus will prove eventually to be the cause of the inflammatory reaction in arteries and veins. This subject was also studied by Thompson.[9]

Routine care should include daily foot baths with soap and water, careful drying, and the application of a mild ointment, such as hydrous wool fat (lanolin). Even when fungus disease is absent, the regular use of some fungistat is desirable. The presence of an ulcerated lesion obviously modifies and changes local foot care.

The use of vasodilator drugs has received attention for many years. As yet there is no satisfactory drug that will consistently effect clinical improvement. Much of the investigative work has been performed on patients with normal circulation. Although this approach is necessary, it does not apply to the patient with arterial disease. The measurement of changes in peripheral circulation also presents a problem, and as yet no single method of evaluation has been devised which is without error. However, by using one or more methods it is possible to arrive at some conclusion concerning the effects of certain drugs on the vascular system, with particular reference to changes in the cutaneous and deep circulation. One of the drugs which has received extensive investigation is priscoline® (2 benzyl-4, 5-imidazoline hydrochloride). First introduced in 1939 by Hartman and Isler,[10] it has been accepted as a sympatholytic drug of value in vasospastic disorders. Grimson [11] and associates reported favorable results in 1948. Further studies on normal subjects and those with peripheral vascular disease have been published.[12] Priscoline® used intravenously has a powerful vasodilating effect, which acts especially on the skin of the extremities. This vasodilatation probably results from a peripheral sympathetic blocking effect. By administering it intravenously, the drug may be of value in determining the completeness of a reflex heating test and in determining suitable candidates for sympathectomy. It may be used successfully as a substitute for lumbar paravertebral sympathetic nerve blocks. When given orally, in my colleagues and my experience, it has been of help clinically in the treatment of Raynaud's disease. However, patients with occlusive arterial disease have not been benefited by the oral administration of priscoline,® large doses being used for a prolonged period. Two other sympatholytic drugs are tetraethylammonium chloride or bromide (etamon®) and dibenzylbetachlorethylamine hydrochloride (dibenamine®). Both have the ability to block the sympathetic pathway. Both must be given intravenously or intramuscularly, which presents an obstacle in clinical practice. These drugs have a more generalized vasodilating effect, resulting at times in pronounced hypotension and reduced peripheral blood flow. Clinically they have been ineffective in our experience in the treatment of occlusive vascular disease. An additional drug receiving attention at the present time is betapyridyl carbinol (roniacol®) tartrate, and a preliminary report has been submitted by Samuels.[13] My colleagues and I have used this preparation extensively during the past year on patients with occlusive arterial disease as well as on patients with Raynaud's disease and believe the drug merits further investigation. As in the case of priscoline,® this drug appears more beneficial in cases of Raynaud's disease.[12a]

Adequate reports are not available concerning the use of corticotropin (ACTH) and cortisone in the treatment of thromboangiitis obliterans. Allen [14] states that he noted no improvement in a limited number of cases. Kappert and Hadorn [15] have recently reported the use of new hydrogenated ergot alkaloids in cases of peripheral vascular disorder. Their results in 118 cases appear encouraging and merit additional investigation.

The importance of anticoagulants in the treatment of thromboembolic disease is well recognized. Their routine use in cases of uncomplicated peripheral vascular disorder is not recommended. Freeman[16] and associates have reported on the use of intra-arterial heparin in vascular surgery. More recently Freeman and Gilfillan[17] have used heparin intra-arterially in conjunction with endarteriectomy. This procedure opens a new approach for the treatment of arteriosclerosis obliterans with complicating thrombosis, and the results to date appear encouraging.

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[8] Samuels, S.: Editorial: Etiology of Thromboangiitis Obliterans, Angiology **1:** 448 (Oct.) 1950.

[9] Thompson, K. W.: Studies on the Relationship of Dermatomycosis to Ulceration and Gangrene of the Extremities, Yale J. Biol. & Med. **16:** 665 (July) 1944.

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[11] Grimson, K. S.; Reardon, M. J.; Marzoni, F. A., and Hendrix, J. P.: The Effects of Priscol (2-Benzyl-4, 5-Imidazoline HCl) on Peripheral Vascular Diseases, Hypertension and Circulation in Patients, Ann. Surg. **127:** 968 (May) 1948.

[12] (*a*) Kaufman, J.; Inglauer, A., and Herwitz, G. K.: Effect of Priscoline (2-Benzyl-4, 5-Imidazoline Hydrochloride) on Circulation and Skin Temperature in Normal Man, Angiology **1:** 515 (Dec.) 1950. (*b*) Green, H. D.; Perkins, W., and Abernethy, J.: Evaluation of the Severity of Organic Occlusive Disease and Comparison of the Effectiveness of Various Procedures in Relaxing Peripheral Vasospasm: Severity Evaluated by Determining Cutaneous Blood Flow in the Extremities from Records of Cutaneous Temperature During Maximum Vasodilation: Effectiveness of Spinal Anesthesia, Intravenous Tetraethyl Ammonium Ion (Etamon), Intravenous Benzylimidazoline, (Priscoline) and Application of Heat to the Torso, Circulation **1:** 1277 (June) 1950. (*c*) Horwitz, O., and others: Effects of Vasodilator Drugs and Other Procedures on Digital Cutaneous Blood Flow, Cardiac Output, Blood Pressure, Pulse Rate, Body Temperature, and Metabolic Rate, Am. J. M. Sc. **218:** 669 (Dec.) 1949. (*d*) Rogers, M. P.: Use of a Sympatholytic Drug (Priscol): From the Point of View of a General Surgical Practitioner, J. A. M. A. **140:** 272 (May 21) 1949. (*e*) Crowley, L. G.; Murphy, R. A., Jr., and Cooper, F. W., Jr.: The Release of Vasoconstriction by Vasodilator Drugs and Sympathetic Nerve Block: An Experimental and Clinical Study, Surgery **27:** 879 (June) 1950. (*f*) Lynn, R. B.: Effects of Priscol on the Peripheral Circulation, Lancet **2:** 676 (Dec. 2) 1950.

[13] Samuels, S. S., and Pader, E. D.: A New Vasodilator (Roniacol): A Preliminary Report, Angiology **1:** 236 (June) 1950.

[14] Allen, E. V.: Personal communication to the author.

[15] Kappert, A., and Hadorn, W.: Experimental and Therapeutic Investigations with Certain New Hydrogenated Ergot Alkaloids in Peripheral Vascular Disorders, Angiology **1:** 520 (Dec.) 1950.

Any summary of medical therapy should include some reference to the work now in progress of many investigators concerning the use of low cholesterol, low fat diet, combined with lipotropic and endocrine agents. This subject has been reviewed recently by Morrison.[18] Several years' study will be required in order to draw conclusions from the available evidence, which would indicate that this approach is worthy of continued investigation.

Weisman and Allen,[19] by means of carefully controlled skin temperature studies and clinical observation, could detect no significant improvement following the use of histidine and vitamin C. Similar results were recorded after the intravenous use of ether. My colleagues and I have had little success clinically with nicotinic acid and papaverine. Samuels[1] has employed sodium chloride intravenously in the treatment of thromboangiitis obliterans and arteriosclerosis obliterans. He has reported excellent results when the preparation is used concurrently with routine measures, although other[20] workers have not substantiated his experience.

This report of management .of occlusive peripher vascular disease omits by necessity many important fac- tors, especially those related to the local care of th extremity with advanced arterial insufficiency. Althou laboratory evidence is lacking, the clinical picture o thromboangiitis obliterans is, in my opinion, consiste with a specific etiological agent. Even in the absence of known cause, patients with thromboangiitis obliterar can be treated successfully. In contrast, arterioscleros obliterans presents a more difficult problem, and avai able treatment is chiefly palliative in nature.

CONCLUSIONS

There is no single form of treatment for the manag ment of occlusive peripheral vescular disease. Adequ therapy combines the intelligent use of physical me cal, surgical, and medical measures. Persistent use conservative measures, as outlined, may result in savi many limbs.

2020 E. 93d St.

16. Freeman, N. E.; Wylie, E. J., and Gilfillan, R. S.: Regional Hepa ization in Vascular Surgery, Surg., Gynec. & Obst. **90**: 406 (April) 1

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MANAGEMENT OF ABNORMAL PRESENTATION DURING SECOND STAGE OF LABOR

Daniel B. Dorman, M.D., Pittsfield, Mass.

In recent years there have been few radical changes in the management of abnormal presentation during the second stage of labor. But it behooves us all to review our results periodically and to attempt to improve our fetal salvage. This may often be accomplished by emphasizing such commonly accepted procedures as sterile vaginal examination during labor or frequent auscultation of the fetal heart. Many hospitals require obstetric consultation for prolonged or complicated labor, such as those with abnormal presentation. A good physician, whether a specialist or general practitioner, should not hesitate to consult another physician.

GENERAL CONSIDERATIONS

Etiology.—Though there are numerous causes of abnormal presentation, the commonest are the following: cephalopelvic disproportion, relaxed musculature of the multipara, prematurity, placenta previa, congenital anomalies, twin pregnancy, and pelvic mass. Frequently no definite cause can be found, and yet abnormal presentation may recur with a subsequent pregnancy.

Diagnosis.—Though the diagnosis of abnormal presentation should be made as early in labor as possible, or even before onset of labor, one frequently becomes aw of the abnormal situation for the first time when the ond stage is reached and the fetus fails to descend. cause of the tense abdominal wall, abdominal *palpat* may give little help in diagnosis. Rectal examinati though giving more information, may merely indicate unusual problem without disclosing the presenting p It is at such a time that a sterile vaginal examinatio often of great assistance in evaluating the presenta and position and the progress likely to be made further conservative measures. X-rays of the pelvis another desirable aid in diagnosis. They may be use the second stage of labor to check on the abnormal p entation and its cause.

Choice of Delivery.—In general, if satisfactory p ress is being made and if the condition of the mother baby is good, it is safe to be conservative. When littl no progress is being made, there is no point in wai longer for active intervention. The choice of proced will be influenced by the cause of the abnormal prese tion, by the condition and viability of the baby, and the condition of the mother. The age and parity of mother may be a factor, as well as the length of tim labor or with ruptured membranes. The physician *sho* usually select a procedure with which he is familiar. should have clearly in his mind the position of the fe

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the relation of the forceps to the fetus and to the birth al. Gentleness and skill should replace force and ng traction. A cesarean section may be preferable to fficult vaginal delivery when no consultant is avail- . But one should also bear in mind that despite the ent of antibiotics the statistics on cesarean section w that it does not approach the safety of a vaginal de- y for the mother.

upportive Measures.—To the Fetus: The checking of fetal heart rate at frequent intervals becomes more ortant as the second stage is reached. This cannot be emphasized, for with abnormal presentation prolapse e cord is much commoner than in normal labor. In event of signs of fetal distress, appropriate measures ld be taken, including the administration of oxygen e mother. A suction catheter, oxygen, resuscitator, ulants, and incubator should all be ready in case the should be slow to breathe. Although use of vitamin as not reduced the incidence of intracranial hemor- e as much as was originally hoped, there are few who ld deny this to a woman in complicated labor or to by after difficult delivery.

o the Mother: Since prolonged labor is frequent with ormal presentation, supportive measures are of the ost importance when the mother is nearing delivery. quate sedation should be given, at the same time iding suppression of the contractions or depression of emature infant. Intravenous fluids should be given as cated, and blood should be available for emergency. ibiotics and sulfonamides are often used when labor nusually extended or if membranes have been rup- d. The use of oxytocin injection (pitocin®) in the nd stage of labor should be condemned for abnormal entation. It is in such cases that fetal death has oc- ed from intracranial hemorrhage.[1] Whether or not is sympathetic with the teaching of natural child- 1, most practitioners and obstetricians recognize the e of encouragement and reassurance which allow a ent to relax at least between contractions. It is in the part of the labor that one or more visits to the patient important for her morale.

Anesthesia.—The type of anesthesia selected will de- d to a large extent on whether uterine relaxation is uired. Inhalation anesthesia will never be replaced en- ly, for the safety and ease of administration of ether well known. In many small hospitals where obstetri- anesthesia is given by untrained personnel, open drop er is still the best choice. Nitrous oxide, cyclopropane, l chloroform all have their advantages. Intravenous pental (pentothal®) sodium anesthesia is employed ome centers successfully but is not suitable for general in smaller hospitals.

In the field of conduction anesthesia the saddle block replaced caudal anesthesia in many areas because of ease and safety with which it can be given. Though as prolonged as continuous caudal anesthesia, it may be given in the last part of labor before delivery is un. Excellent perineal relaxation is obtained, and quently a fetus in a posterior position or a breech sentation may be quite easily delivered under a low nal anesthesia. For internal podalic version or for a h rotation of the head, inhalation anesthesia is preferable. Similarly, pudendal block and local infiltration have their place in a physician's armamentarium—for a patient who has vomited under general anesthesia.

Complications.—Among the complications associated with abnormal presentation, prolonged labor with cervical dystocia or secondary inertia is the commonest. Other untoward events might include development of a pathological contraction ring, prolapse of the cord or an arm, or rupture of the uterus. And in the later stages of labor retained placenta, atony of the uterus, and postpartum hemorrhage are not uncommon. The management of these individual complications is not within the scope of this paper.

SPECIFIC PROBLEMS

Occiput Posterior.—Because of excessive molding of the head, with caput formation, the diagnosis of this condition may be difficult. Feeling the ear by vaginal examination will usually give the clue in such a case. Anyone who has followed patients in labor with repeated examinations knows that a high percentage of fetuses in occiput posterior positions will rotate spontaneously to the anterior. This percentage is quoted to be from 70%[2] to 97%.[3] No rigid time limit should be set for all cases, but if no rotation has occurred after two hours of full dilatation in a primipara or after one hour in a multipara, it would seem reasonable to assist the delivery. The physician may at times be plagued also by incomplete dilatation of the cervix in these cases.

Delivery is usually accomplished by rotation manually or by forceps (Scanzoni maneuver). Occasionally with a small baby or with a roomy pelvis, the baby may be delivered in an occiput posterior position. Such a delivery, however, runs the risk of undue trauma to the baby or lacerations to the maternal soft parts. Internal podalic version is rarely necessary, and cesarean section should be reserved for disproportion.

Transverse Arrest.—Caldwell, Moloy, and D'Esopo[4] have emphasized the frequency of transverse position of the fetal head in the descent into the pelvis. Yet occasionally with a flat pelvis or a large baby, the baby in such a position will not rotate or in an occiput posterior position will rotate only to the transverse. Here again time should be given in the second stage to permit the head to descend and to rotate spontaneously. If intervention is necessary, rotation may be assisted manually or by forceps. The Barton and the Kielland forceps are particularly adapted for such problems, but the commoner Simpson forceps may also be used. If a perfect application cannot be made at first, gentle rotation with subsequent reapplication of the blades is often feasible and will not injure the baby. Frequently the head may seem to descend more easily in the transverse position, with rotation accomplished on the perineum. Use of axis traction or supplementary suprafundic pressure may prevent excessive trauma.

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Breech Presentation.—This group includes many premature infants and also many anomalies. The complications to be guarded against particularly are disproportion and prolapse of the cord. A good rule is to have an x-ray of all primiparous breeches. There is some disagreement as to the optimum time for delivery of a breech. But for one who is not trained in obstetrics, it is preferable to wait until the buttocks have been delivered spontaneously before assisting the delivery. This is particularly true of a premature infant, in which the head is proportionately larger than the body, or of a single footling presentation, when dilatation of the cervix may not be complete. Another physician or a nurse should be available to assist at the delivery. An episiotomy should be made before delivery is started. Progress in extraction must be steady, but movements must not be hurried or forceful. Use of Piper forceps to the head, if this is not delivered easily, will prevent trauma to the infant. Cesarean section again should be reserved for cases of disproportion or for borderline pelvic measurements in an elderly primipara.

Face Presentation.—Many face presentation babies will be delivered spontaneously, chin to pubis, if sufficient time is allowed, and with easy low forceps delivery included 75% will offer no great problem.[5] Internal podalic version may be the method of choice in some cases, though because of risk to the mother and fetus this maneuver has been used less frequently in recent years. Cesarean section is usually done in about 10% of cases, being especially indicated in cases of disproportion or when the chin is in a posterior position. Cesarean section done at the second stage of labor should be of the low flap or extraperitoneal type.

Brow Presentation.—Fewer babies of this cl
tion will be delivered spontaneously, and the prog
worse for the fetus. Attempts may be made und
anesthesia to flex the head to convert it to an o
presentation or, failing this, to convert it to a face p
tation. Such conversion, however, may not be p
If no progress is made, podalic version or cesare
tion may be the procedure of choice.

Transverse Presentation.—Because of the rel
high maternal and fetal mortality rates,[6] diagn
transverse presentation should be made as early a
sible, and when the condition is suspected, x-rays
be taken. Prolapse of the cord and arm are co
Cesarean section is probably the safest method
livery in the average case, and, of course, the feta
rate must be checked just before operation. If th
nosis is not made until the second stage of l
reached and if the membranes are intact or recen
tured, the skilled physician may safely and prop
an internal podalic version. In the case of a dea
Braxton Hicks version is the best choice.

SUMMARY

The diagnosis, choice of delivery, and su
measures to the mother and fetus in the second
labor are discussed, first in general and then in
to specific types of abnormal presentation.

74 North St.

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SURVIVAL, RESCUE, AND RESUSCITATION

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The Armed Forces are keenly interested in survival, rescue, and resuscitation. They desire to conserve manpower and to maintain high morale, and the development of survival, rescue, and resuscitation techniques contribute to both of these factors. The aircraft pilot, the submariner, the men who man the surface ships, and the amphibious forces transported therein know that there are inherent dangers in the performance of their duties, many of which have nothing to do with the dangers of actual combat. It is a comforting feeling for them to know that efforts are being made and equipment provided to increase their opportunity of survival and the possibility of rescue in the case of accident or disaster.

A great deal of survival equipment was developed during World War II principally for the support of the aircraft pilot. Starting as a simple first-aid kit, the equipment developed into a variety of more or less comprehensive collections of gear designed to provide shelter and means of sustenance, with particular em
tropical conditions. Recently survival problem
than those met with in the tropics have assume
tance, and it has become necessary to develop
equipment and techniques on a global basis.

SURVIVAL AND RESCUE

Aircraft.—As for aircraft, the design conf
and the high speeds of new types necessitated
velopment of a device which would permit saf
from the aircraft in emergency. For various
unaided escape is neither easy nor safe, and as
there was developed the ejection seat which p
safe means of egress. The antibuffeting helmet
veloped to protect the head of the pilot during th
vibrations of uncontrolled aircraft.

However, with the pilot clear of the ship, s
problems arose. The opening shock forces of t
ard parachute at high altitudes and high speeds
such a magnitude as to create a further poss
severe injury. It was necessary to improve the
the parachute in order to lessen shock, and it
imperative to improve oxygen equipment for
scent from extremely high altitude to prevent a

The opinions contained in this paper are those of the author. They are not to be construed as necessarily reflecting the views or the endorsement of the Department of the Navy.

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ce the airman is safely down, further problems in
al confront him, depending on the area in which
ds. A great deal of military flying is being done
arctic and subarctic areas, over both land and sea,
lucing the need for development of other survival
ment and knowledge. The know-how to live in an
nely cold and relatively barren area is obviously
tant. It is necessary not only to supply equipment
train personnel in its use and to care for them-
under severe climatic conditions.

e philosophy regarding survival equipment has
gone recent changes. It has been necessary to ana-
he emergency nature of the various survival situa-
in order to establish the fundamental requirements
ms of survival gear. Because of space and weight
tions, the gear carried in fighter planes is curtailed,
this equipment is purely short-term emergency
ment. Items designed for prolonged survival are
d by special rescue aircraft. In sustenance kits of
emergency type, the material is intended to make
erson comfortable until either rescue takes place
short time or long-term survival supplies can be
hed. It should be emphasized also that there is a
uing need for further methods of early location of
nnel down in remote, isolated, and difficult terrain
n ocean areas.

e extensive study devoted to the clothing necessary
e properly with the survival situation on the ground
the water has resulted in the development of all-
se types. In spite of considerable progress, this
ment has not yet reached perfection. Immersion
ction for the person suddenly thrown into the cold,
en cool, water presents a considerable problem.
rsion is a highly lethal hazard. A human body cools
immersed in water at a temperature of less than
, and the warmest open-ocean water in any latitude
time of the year is 84 F. The rate of loss of body
ncreases rapidly as the temperature of the air and
falls. Persons, even in warm climates and while
in life rafts, lose body heat by evaporative cooling.
rson in water in the Aleutian area with a water
rature of 30 F. may survive only 20 to 30 minutes.
sure to sea water for a long time, although not suf-
t to kill, does, by a general chilling of the body, act
y to cause gangrene. An exposure suit for protec-
against immersion is a highly desirable piece of
ment for survival when one is operating over or on
ater and immersion is a possibility. During World
II the need for fireproof or fire-resistant clothing for
the aviator and rescue teams was pointed out. Con-
able progress has been made on these items.

hen a person is forced down in an aircraft or
dons a ship at sea, he is faced by two chief problems
s efforts at survival. First, he must have flotation
of a sort, and, second, he must have water to drink.
l, compact, yellow-colored rubber life rafts have
developed for the airman to carry. The yellow color
n the raft's detection, and when special search-type
es are used by the rescuers, filters in the goggles
tuate the yellow color against the background of
a, making the raft more readily detectable. Other
rafts, including large dropable rigid boats, are part
e equipment used in rescue of persons in the sea.
life rafts are equipped with cans of water, but better still are the compact devices which can be used to manufacture potable water from sea water. These include desalinization kits and solar stills.

An item in the survival category which is very much needed is a comprehensive and concise weatherproof manual for survival on land and sea under all climatic conditions. Such an item would furnish ready information on survival procedures under all conditions and greatly enhance the chances of personnel forced to shift for themselves under difficult circumstances.

Extensive field trials have been made of much of the recently developed survival equipment. Collaboration with the British Navy, Royal Air Force, and our Canadian neighbors in evaluating this equipment has made it possible for an extensive review to be made of all the presently available equipment and techniques. Shortcomings of some of the items have been demonstrated, but perhaps the greatest weakness of all is in the lack of indoctrination and training of personnel in survival techniques and use of equipment. It is apparent that the Armed Forces as a whole must carry out an extensive program in survival training, especially in cold-weather survival, if we are to be successful.

In the field of rescue equipment and techniques, I am certain everyone is aware of the remarkable adaptability of the helicopter in short-range rescues. There are numerous accounts of the rescue of downed aviators through the use of this remarkable aircraft. There is still, however, need for the improvement of this rescue device. This improvement involves some of the design features of the aircraft itself, as well as the equipment used for picking up personnel and comfortably transporting them to a more favorable location. Recently, in one instance, an injured naval aviator down at sea was unable to be rescued by helicopter because he was physically incapable of securing the line to his person so that he might be hoisted into the aircraft.

Submarine.—In submarine escape considerable advance has been made. Experience in the past has shown that indoctrination and training in procedures for escape from disabled submarines has been very valuable. Submarine personnel should be made intimately acquainted with the principles involved in the physics and physiology of the gases employed in the individual submarine-escape device as well as with the technique of "free" escape for use in shallow water. For moderately deep escape there should be a compression chamber on hand to treat those persons in whom decompression illness develops. For escape from extreme depth (150 ft. or more), another technique developed and used with success in the rescue of personnel from the USS Squalus is that of the rescue chamber. This chamber is lowered over the hatch of the submarine, and survivors are brought to the surface by raising the chamber itself. There are two escape-training tanks in operation in the Navy. These are at New London and Pearl Harbor. Training in these tanks acquaints submarine personnel in the techniques for both "lung" and "free" escapes.

RESUSCITATION

The subject of resuscitation is presently under intensive study. Under the guidance of Dr. David B. Dill, Scientific Director of the Army Chemical Corps Medical Laboratory, a group of highly interested and very capable scientists from various parts of the country have been investigating the problem of resuscitation techniques for the Armed Forces. These persons have been mainly interested in manual resuscitation techniques. When the most effective methods to be used in resuscitation were being determined, some very fundamental studies in cardiorespiratory physiology were carried out. Determination of lung volume-pressure relationships is important with respect to body positioning. These relationships are changed by body positioning and the role of the abdominal content in limiting excursion of the diaphragm and in other instances in producing diaphragmatic movement. This latter factor is taken into account in some of the techniques in resuscitation.

There has recently been an evaluation of the various manual resuscitation techniques by Wittenberger and Sarnoff, Ivy and his group, and others. It is generally agreed that the Schafer method is a poor one, although it is the most widely used, since the amount of air moved in and out of the lungs during each induced respiratory cycle is small. The Eve method, which makes use of the weight of the abdominal organs to alternately push and pull the diaphragm up and down like a piston, has the approval of many. However, this method requires a certain minimum of equipment, and often such equipment is not available or is available only after some delay. An occasion may arise in which a delay of as much as 30 to 60 seconds would be serious. An effective method which requires no equipment, but which uses the push on the diaphragm by the pressure of the abdominal organs, is the hip-lift method. To obviate the fatigue of the operator and still maintain effectiveness, the hip-roll technique has been suggested as a substitute for the hip-lift.
This latter method can be done for longer perio
time and is as effective as the hip-lift method. It has b
further modified by ending each cycle with compres
of the lower part of the chest, as in the Schafer met

It is yet a question whether manual artificial res
tion is as efficient as insufflation of the lungs by a
chanical device. The margin of difference between
two often appears to be small. To rely entirely on
chanical methods to reinstate breathing would not se
to be the best policy to follow. In some of the ov
whelming accidents with sudden asphyxia or respira
failure, delay in restoring respiration while one is wai
to procure, apply, and adjust a machine would be f
hardy.

That mechanical respirators are of considerable va
is not denied. When they are readily available and o
ated by experienced personnel, they often have a dist
advantage over manual methods. They may be opera
for prolonged periods of time and permit the admi
tration of either 100% oxygen or various gas mixtu
Regardless of the merits of mechanical resuscitation,
matter of primary importance to the Armed Forces
day is the selection of the most efficient metho
manual resuscitation and the training of its person
that method. For a good many years all personnel
been trained in the use of the Schafer method, and
job of retraining in a new method is not inconside
when one considers the number of persons involved
avoid confusion, the method chosen must be
acceptable to civilian groups, and training in resu
tion as a first-aid measure must be standardized thr
out the United States.

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VENEREAL DISEASE CONTROL

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The modern venereal disease control program in the United states may be said to have begun on May 24, 1938, when the National Venereal Disease Control Act of 1938 was passed—

> For the purpose of assisting states, counties, health districts, and other political subdivisions of the states in establishing and maintaining adequate measures for the prevention, treatment, and control of the venereal diseases; for the purpose of making studies, investigations, and demonstrations to develop more effective measures of prevention, treatment, and control of the venereal diseases, including the training of personnel.[1]

When venereal disease control is talked of, syphilis is usually spoken of. Syphilis and gonorrhea are by far the most prevalent of the venereal diseases, and gonorrhea is many times more prevalent than syphilis.
control of gonorrhea may still be considered a
health function, the use of the sulfonamides and
in its treatment, with the concomitant reduction of
complications and the promptness with which in
persons seek treatment,[2] place it in a different
from syphilis. So in my discussion of the control of
real diseases, I will be speaking principally of the
of syphilis.

CONTROL MEASURES

In the United States the venereal disease contro
gram is based on six major administrative proce
which have been aptly described by Dr. J. E. Moor
least one or more of the measures to be mentioned
stitutes the control programs carried on in different
of the country.

Methods Planned to Reduce Number of Pote
Infectious Exposures.—The objective here is mo
tion of human behavior, i. e., reduction of sexual pr
cuity. Most of these methods represent primarily
munity rather than medical or public health effort.
are long term rather than short and are difficult to e
ate. The failures of the methods involved are meas

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Read in the Symposium on a Critical Evaluation of Public Health Programs before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 15, 1951.

[1] Statement on S. 3290, Public Law 540, Chap. 267, read before the 3d Session of the 75th Congress, 1938.

[2] Wright, J. J., and Sheps, C. G.: Reports of the North Carolina Syphilis Studies: III. An Evaluation of Case-Finding Measures in the Control of Gonorrhea, J. Ven. Dis. Inform. **30**: 213 (Aug.) 1949.

[3] Moore, J. E.: An Evaluation of Public Health Measures for the Control of Syphilis, Am. J. Syph. **35**: 119 (March) 1951.

than the successes. These efforts on the part of the es, schools, colleges, recreational and housing es, and law-enforcement agencies must be con- and new techniques developed if the gains we have ire to be maintained.

hods Planned to Reduce Probability of Infection osure Occurs.—This refers to prophylaxis—me- al, chemical, and chemotherapeutic. Prophylaxis method to be emphasized in civilian life, although educational approach it should not be omitted.

hods Planned to Improve Diagnosis and Treatment ction Occurs.—In the United States medical edu- in regard to syphilis has improved greatly in the 5 years. Laboratory diagnosis has improved—the the cardiolipin antigen and the discovery of the ema-immobilizing antibody have given a new ig to serodiagnostic tests. New chemotherapeutic ds—first, improved schemes for intensive treat- vith arsenic, then in 1943 the introduction of peni- -have completely revolutionized the treatment of s and gonorrhea. The almost universal use of peni- or diseases other than syphilis has undoubtedly had ct on the control of syphilis by unknowingly break- chain of infection and thus lowering the incidence id curing many cases of undiagnosed syphilis.

hods Planned to Increase Availability of Diagnos- Treatment Facilities.—An infected person almost ere in the United States can receive expert diag- , consultative, and therapeutic service at no cost.

thods to Increase Number of Infected Persons ht and Kept Under Treatment Until Its Comple- -This refers to case finding and case holding. Mass testing has been developed in the last 13 years. It is method that the reservoir of late and latent syph- es has been so materially exhausted. The epidemio- approach to case finding is a real contribution to l so far as bringing early infectious cases to treat- It is this approach to the problem of case finding as been so effective in the hands of public and clinics. However, it has been quite ineffective in nds of the private practitioner, and new techniques utilization of this control method have yet to be ped.

lical and Administrative Research.—This refers to ping and testing methods of control, evaluating ffectiveness, and answering the unsolved medical nmunological problems relating to syphilis which lescribed in 1939.[4]

EFFECT OF CONTROL MEASURES

at has been the effect of these methods of control ave been so sketchily described? Have the purposes National Venereal Disease Control Act been met? is the evidence?

le 1 summarizes reported mortality and insanity syphilis for the years 1933 through 1950.[5] An ge of 20,053 deaths from syphilis occurred each the continental United States from 1933 to 1939, ng in a rate between 15 and 16 per 100,000 popu- In 1940 the rate began to decline steadily, which ontinued through 1950 when the Public Health e estimated the rate to be 7.0 (about 10,000).[6] lecrease is particularly meaningful in view of the increasing accuracy in the reporting of deaths due to syphilis since 1939.

From 1933 to 1936 first admissions to mental hospitals (exclusive of veterans hospitals) for psychoses due to syphilis occurred at the rate of 6.6 per 100,000 civilians. This rate remained at the same level until 1943, when 7,284 patients were admitted, a decrease to 5.4. In 1949 there were 4,690 such patients admitted, a further decrease to 3.2 per 100,000.[7]

In 1933 before their first birthday 1,639 babies died from syphilis, resulting in an infant mortality rate due to syphilis of 0.79 per 1,000 live births for that year. In 1940 there were 1,251 infant deaths from this cause, and in 1948 only 438 infant deaths were due to syphilis, resulting in a new low of 0.09 deaths from syphilis per 1,000 live births.[8] With the recognition that deaths and disabilities due to syphilis are not all reported as such, there is no doubt that these figures represent a true decline in mortality and mental disease due to syphilis.

TABLE 1.—*Reported Mortality and Insanity Due to Syphilis, Continental United States, 1933-1950*

	Syphilis Mortality Per 100,000 Population			Infant Mortality Due to Syphilis, Rates Per 1,000 Live Births			First Admissions to Mental Hospitals Due to Syphilis, Rates Per 100,000 Population *
Year	Total	White	Nonwhite	Total	White	Nonwhite	Total
1933	15.1	10.9	52.4	.79	.44	2.95	6.6
1934	15.9	11.3	56.6	.74	.41	2.84	6.6
1935	15.4	11.0	54.0	.70	.41	2.77	6.6
1936	16.2	11.5	56.8	.73	.41	3.07	6.6
1937	16.1	11.4	58.0	.69	.37	2.96	6.4
1938	15.9	11.1	58.2	.63	.33	2.81	6.3
1939	15.0	10.4	55.1	.57	.28	2.60	6.6
1940	14.4	9.9	54.3	.53	.25	2.52	5.8
1941	13.3	9.3	47.5	.41	.18	2.03	6.1
1942	12.2	8.6	42.5	.30	.15	1.50	5.9
1943	12.1	8.6	42.1	.25	.12	1.28	5.4
1944	11.3	7.9	39.6	.27	.12	1.35	5.3
1945	10.7	7.5	36.9	.25	.11	1.26	5.2
1946	9.3	6.6	32.1	.16	.07	.92	4.7
1947	8.8	6.4	29.9	.14	.05	.82	4.3
1948	8.0	5.7	26.9	.12	.05	.63	3.7
1949	7.6	5.6	23.8	.09	.04	.45	3.2
1950†	7.0	....	....	...	...	....	...

* Does not include admissions to Veterans Administration hospitals.
† Estimated.
Source: Federal Security Agency, United States Public Health Service, Division of Venereal Disease, Office of Statistics.

What is the evidence regarding the frequency of syphilis in the general population? It is well known that not only are many cases undiscovered but that, of those which are diagnosed, a considerable proportion are not reported. Despite these rather serious limitations, however, much can be learned by examining the data on the reported cases of syphilis.

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[4] Footnote 3, p. 132.

[5] Venereal Disease Fact Sheet, No. 7, December, 1950, Federal Security Agency—Public Health Service Division of Venereal Disease Office of Statistics.

[6] Summary of Reported Syphilis Mortality, Continental U. S., 1933-1948, J. Ven. Dis. Inform. 31: 123 (April) 1950. Rates for 1949 and 1950 estimated by Division of Venereal Disease, P. H. S., F. S. A., Office of Statistics.

[7] Bauer, T. J.: Personal communication to the author. Computations by Office of Statistics, Division of Venereal Disease, Federal Security Agency, United States Public Health Service. Bureau of Census: Patients in Mental Institutions, 1933-1946. National Institute of Mental Health: Patients in Mental Institutions, 1947-1948.

[8] Syphilis Infant Mortality Data, Continental United States, 1933-1948, J. Ven. Dis. Inform. 30: 122 (April) 1950.

The Figure is a graphic representation of statistics compiled by the Public Health Service[9] showing the reported cases of acquired syphilis since reporting by stage first began in 1941. First, it is seen that the discovery rate of late and late latent syphilis reached a peak in 1943, then fell sharply, and has leveled off since 1947. Second, the number of cases of early latent syphilis reported has remained at a fairly constant level. Finally, the number of reported cases of primary and secondary syphilis rose slowly from 1941 until the close of the war, when it rose sharply. After this the number fell rapidly until in the year 1950 it reached the lowest level since reporting by stage began, and this decrease has continued into 1951.

TABLE 2.—*Funds Budgeted for Venereal Disease Control*

Fiscal Year	Federal	State and Local	Total	From State and Local Services (%)
1939..............	3,080,000	4,312,329	7,422,329	58.5
1940..............	4,723,366	5,988,655	10,712,021	55.9
1941..............	6,362,219	6,842,926	13,205,145	51.8
1942..............	8,447,294	6,984,585	15,431,879	45.3
1943..............	10,595,880	7,457,100	18,052,980	41.3
1944..............	10,984,531	9,300,275	20,284,806	45.8
1945..............	10,325,724	11,726,759	22,052,483	53.2
1946..............	10,278,094	11,428,098	21,706,192	52.6
1947..............	16,628,000	11,842,951	28,470,951	41.6
1948..............	17,602,000	21,253,000	38,855,000	54.7
1949..............	17,359,000	25,332,000	42,691,000	59.3
1950..............	15,719,000	25,729,000	41,448,000	62.1
1951..............	12,864,000	22,432,000	35,296,000	63.6
Total 1939-51...	144,969,108	170,659,678	315,628,786	54.1

Federal Security Agency—Public Health Service Division of Venereal Disease Office of Statistics.

TABLE 3.—*Savings in Cost of Maintaining Syphilitic Psychotics in Mental Institutions (Excluding Veterans Administration Hospitals) Since Beginning of Federal Grant-In-Aid for Venereal Disease Control**

Year	Number Would Have Been Admitted	Actual Admissions	Admissions Saved	Savings †
1937..............	8,502	8,275	227	$ 2,485,650
1938..............	8,568	8,217	351	3,843,450
1939..............	8,626	8,625	.....	....
1940..............	8,689	7,692	997	10,917,150
1941..............	8,683	8,083	600	6,570,000
1942..............	8,638	7,925	713	7,807,350
1943..............	8,409	7,284	1,125	12,318,750
1944..............	8,351	7,068	1,283	14,048,850
1945..............	8,412	6,897	1,515	16,589,250
1946..............	9,134	6,547	2,587	28,327,650
1947..............	9,416	6,102	3,314	36,288,300
1948..............	9,589	5,394	4,195	45,935,250
1949‡.............	9,752	4,690	5,062	55,428,900
Totals............			21,969	$240,560,550

* If rate of admissions of syphilitic psychotics per 100,000 civilians had remained 6.6 (as it was in 1933-1936).

† At a cost of $3.00 a day and 10 years of hospital life, or $10,950 per syphilitic psychotic.

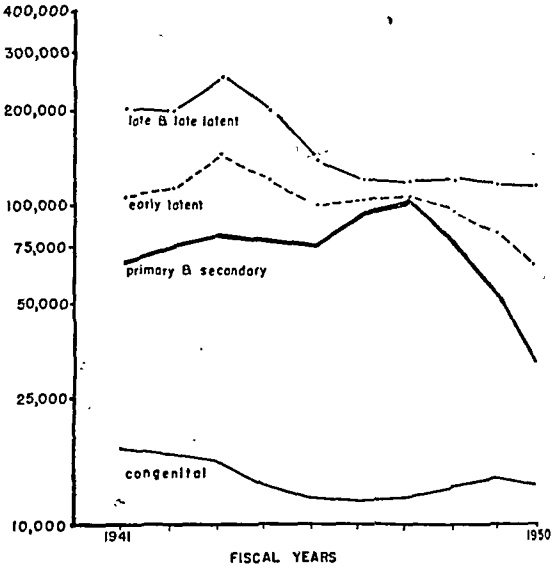
‡ Estimated.

Federal Security Agency—Public Health Service Division of Venereal Disease Office of Statistics.

The backlog of undiagnosed late and late latent syphilis in our population has been materially exhausted, thereby reducing the size of the reservoir of disability and death. In the reservoir of syphilis infection there
other group—the undiscovered infectious cases—
perpetuate the disease. How many newly acquire
are not being diagnosed and treated? It is known,
bases of reported cases alone, that there are mor
being reported in the early latent stage than in p
and secondary stages. This means that over half
infections with syphilis (actually about 60%) ar
missed in the period of maximum infectiousness.

The Figure also shows the disturbing statistics
genital syphilis. During the period of widesprea
penicillin, the number of cases of congenital syp
ported has remained constant. Furthermore, on
fourth of the congenital syphilis cases reported
children of 14 years or younger is being discovere
first year of life.[10] This points to failure some
the program.

The crux of today's syphilis problem is the d
of early cases. The attack rate now needs to be
the guiding index of the effectiveness of the con
gram. Modern treatment has virtually swept a



Reported cases of syphilis in the civilian population of United States from 1941 through 1950.

case-holding problems of syphilis control. Asi
educational and other measures aimed at reducin
iscuity, the core of the syphilis control progra
therefore lie in the persistent and diligent applic
effective case-finding procedures. To control th
of syphilis the use of those methods which find t
in the infectious stage needs to be increased.

How much money has been spent in de
and carrying out the program described? T
shows the funds budgeted for Venereal Disease
in the United States from 1939 through 1951. A
$315,628,786.00 has been spent by official
(local, state, and Federal) since 1939. Does th
expenditure of funds represent a sound investme
the point of view of return for the money invest
jective evidence of this return on the investment i
in Table 3 by the saving in the cost of maintainin
ilitic psychotics in mental institutions since the be
of the Federal grant-in-aid for venereal disease

The average duration of hospital life for such p
is 10 years; at a cost of $3.00 per patient per day,

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9. Statistical Reports of Venereal Disease Division, Federal Security Agency, United States Public Health Service, Office of Statistics, 1941-1950.

10. Editorial, J. Ven. Dis. Inform. 30: 241 (Sept.) 1949.

:onservative estimate, the hospitalization cost alone ;ingle syphilitic psychotic is $10,950.00. The actual ;sions saved during the 13-year period (1937-1949) ɔmpared with the admission rate for the 4-year d (1933-1936) were 21,969, resulting in a saving :40,560,550.00 in hospitalization costs alone.[7] Add is the saving of loss of earning capacity of 219,690 years, and this one element of saving is greater than ɔtal investment itself.

the period 1937-1948 over 14,000 more children d have died in infancy from congenital syphilis had ıfant mortality rate due to syphilis during the years -1936 been maintained constant through 1948. It d be presumptious of me to place an economic value ese lives saved. It is estimated that each death from ilis represents a loss of 17 to 26 years of life.[12] The ng capacity of these man years of life saved repre- a sizeable return on the investment. The economic : of the reduction of venereal disease disability from ovascular syphilis and from syphilitic blindness and ıalmia neonatorum defies calculation.

ıere is evidence that since the development of safe, ɔensive, and easily administered schedules of treat- : utilizing penicillin there has been a shift back to rivate practitioner so far as the treatment of syphilis ɡonorrhea is concerned. This is a shift that may have dvantages in control. However, the practicing phy- n must utilize more effectively the contact-investiga- techniques which have been demonstrated if the nward trend in the attack rate is to continue.

rom the point of view of reduction of mortality and ɔidity, there is no question that the present program is carried on has lessened the problem of syphilis in rica and has more than repaid the money invested. n the point of view of prevention of congenital syph- however, there is evidence of serious failure of the program and a need for reexamination of the procedures being used to prevent this unfortunate complication.

So far as the prevention of the spread of syphilis is concerned, there has been less improvement over the years. There is obvious need, therefore, for immediate intensification of case-finding activities directed at this phase of the problem. Success here will eventually and automatically resolve the other problems connected with the disease. There is need, therefore, to reexamine our case-finding activities and reemphasize those measures directed at the infectious case.

The Public Health Service, through its Venereal Disease Division, has exerted leadership and stimulation without interference for venereal disease control programs on the local level, where the gains cited have all been made. Along with the decline in the incidence of reported syphilis, there is properly occurring a reduction of funds allotted to the venereal disease control program. However, there is evidence that the reduction of funds is resulting in a deceleration of control activities to such an extent that it may be impossible to maintain the gains that have been made. The American Venereal Disease Association is exploring the feasibility of calling a national round-table conference of interested professional and lay persons from different parts of the country to review without prejudice the present status of the venereal disease control program in this country and to attempt to make recommendations to serve as a guide for the program for the next decade on Federal, State, and local levels. The time is ripe for reviewing the present status of the whole field in an attempt to establish a blueprint for the next few years.

University of North Carolina.

11. Deleted in proof.

12. Kahn, H. A., and Iskrant, A. P.: Syphilis Mortality Analysis 1933-1945, J. Ven. Dis. Inform. 29: 193 (July) 1948.

:RITICAL EVALUATION OF PUBLIC HEALTH PROGRAMS IN NUTRITION

Norman Jolliffe, M.D., New York

ıe science of nutrition has made sound progress since). With modest beginnings at the turn of the century, ition has eradicated or possesses sufficient know-how 'adicate all the classical deficiency diseases prevalent ıe first quarter of this century. Thus, rickets, infantile vy, and pellagra—all common diseases in the first :ter of this century—for practical purposes have been ıinated as public health problems.[1] Beriberi and oflavinosis, which both paraded in this country under ıriety of pseudonyms during the first quarter of this ury, are now at the beginning of the third quarter tively rare diseases in the large charity hospitals, ıks to a rising standard of living, health education, min supplementation, and bread, flour, and corn chment.[1] Means are available to prevent simple er and most nutritional anemia. They should no ɡer exist in this country, but unfortunately they do.[1]

arallel with this virtual eradication of some classical ciency-disease syndromes has been the marked im- vement in maternal, infant, and child health and the virtual elimination as public health problems of many infectious and contagious diseases—typhoid fever, infantile diarrhea, diphtheria, syphilis, and pneumococcus pneumonia. These are no longer major personal or public health problems. It is probably safe to predict that in the lifetime of many of us tuberculosis will be eradicated as a public health problem. These advancements have made arteriosclerosis and its allied diseases our number-one public health problem. Sixty million Americans now living will die of it. A new plague, although an old disease, has arisen to smite us. This fact must be met by drastic changes in the direction of public health practices, no matter how untraditional and unconventional these changes may be.

From the Bureau of Nutrition of the Department of Health.

Read in the Symposium on Critical Evaluation of Public Health Programs before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 15, 1951.

1. Jolliffe, N.; Tisdall, F. F., and Cannon, P. R.: Clinical Nutrition, New York, Paul B. Hoeber, Inc., 1950.

Diet plays an important role in the development and course of many chronic degenerative diseases. Although nutritional factors are not now known to play a direct part in the etiology of malignant neoplasms, it is known that the incidence of oral, gastric, vulvar, and liver malignant neoplasms are somewhat greater in those with chronic glossitis and cheilosis, atrophic gastritis, vulvar leukoplakia, or liver cirrhosis, all of which are due at least in part to malnutrition. Furthermore, life insurance records show that overweight people are more liable to cancer than those of normal weight.[2]

Hypertension is much commoner in those who are obese, and the incidence of cardiovascular renal disease is one and one-half times as common in the obese as in persons of average weight.[2] In hypertensive obese patients weight reduction often results in a lowering of blood pressure, improved cardiovascular efficiency, and a better maintenance of cardiac compensation. An effective obesity-control program might well lower the incidence of cardiac disability.

The precise role of dietary cholesterol in the genesis and development of atherosclerosis is incompletely understood. The recent work of Gofman and his associates [2a] indicates a correlation between a certain cholesterol fraction and atherosclerosis, which, if confirmed, introduces the possibility that atherosclerosis could be attacked effectively in a public health program.

The incidence of diabetes is more than twice as great in obese adults as in persons of average weight. Eighty per cent of diabetes in adults is associated with obesity.[2] The signs of diabetes can be completely eliminated in many obese diabetics by weight reduction, and in many others the severity of the disease is greatly modified. Had obesity been prevented in such persons, it might be expected that the onset would be postponed or perhaps completely prevented in some instances.

That degenerative and cirrhotic disease of the liver may be produced by abnormal diets has been demonstrated repeatedly. Liver cirrhosis is a cardinal feature of Kwishikor, or malignant malnutrition of childhood, so prevalent in equatorial America and Africa. The nutritional state also has been shown to be important in the resistance to toxic agents causing liver damage. Patients with cirrhosis of the liver can be improved markedly, in most instances, by nutritional therapy. These facts make it reasonable to assume that adequate diets would do much to prevent diseases such as cirrhosis of the liver in man.

All these problems of chronic degenerative diseases, as well as many others, must be answered by research and field investigations. How well have the public health services, national, state, and local, met this new challenge? The recent report of a subcommittee of the Food and Nutrition Board [3] has reviewed the situation in our
state health departments. This committee points o
most state health departments have personnel de
either part or full time to nutrition. The organiz
varies greatly from state to state. In some instanc
confined to one nutritionist assigned to a special ph
a division's program, while in others it has as
divisional or bureau status comparable to that for
major activities.

The several states vary widely in population,
wealth, and nutritional problems. Furthermore, the
structure of administration and operation varies be
states. Therefore, it is not practical, nor is it desi
to suggest a rigid pattern of organization which
be generally applicable to all states. It is possible,
ever, to envisage a framework of organization
which most states can develop and operate a satisf
program.

This report suggests that in each state there sho
established in the framework of the health depart
separate unit corresponding to a major organiz
subdivision, such as a bureau or division. Such
would assume responsibility for initiating and d
programs appropriate to the nutrition problems
particular state. The unit approach would ena
health department to define the needs and evalu
efforts to meet them. Such a unit approach woul
likely assure a coordinated program throughout
partment.

A public health program for nutrition evaluat
improvement should include a combined
dietary, and biochemical approach. Within th
therefore, there should be included a physician
in nutrition and public health, a chief nutrition
sufficient assistant nutritionists to provide consul
to counties, cities, and institutions throughout th
and either a biochemical set-up or the availabili
adequate university or hospital laboratory equi
perform the necessary biochemical tests. There
also be arrangements for consultation and ser
required from health education specialists *and*
cians.

Where practicable, a nutrition field team consi
a physician, nutritionist, nurse, and technicians
be organized for carrying on field investigations,
demonstrations, and pilot studies. This field team
important; not only does it provide the necessary
of the public health nutrition unit with the public
medical profession, but such activities make it pos
recruit well-trained medical personnel into public
nutrition. Without such a unit, most young, well-
medical men will not even consider this field for a

In states which do not have, or think they do no
the resources to permit the employment of quali
trition personnel for complete staffing of the n
unit on a full-time basis, other arrangements for
and consultations should be made. Here the n
program may be greatly assisted by working close
the Nutrition Branch of the United States Public
Service, when it is reinstituted. In the meantime,
ance of nutrition committees, councils, medical s

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2. Armstrong, D. B.; Dublin, L. I.; Wheatley, G. M., and Marks, H. M.: Obesity and Its Relation to Health and Disease, J. A. M. A. **147**: 1007 (Nov. 10) 1951.

2a. Gofman, J. W.; and others: The Role of Lipids and Lipoproteins in Atherosclerosis, Science **3**: 166-171; 186 (Feb. 17) 1950.

3. A Subcommittee of the Committee on Diagnosis and Pathology of Nutritional Deficiencies: Nutrition Programs in State Health Departments, Pub. Health Rep. **65**: 411-445 (March 31) 1950.

her state department groups, interested civic organiza- ns, and business and professional associations can be ilized. It is essential, however, that responsibility for rection and operation of nutritional activities be vested a scientist, specifically a physician, high in the organi- tional structure of the state health department. He ould be able to discuss nutritional problems, their ap- ication to different fields, and their relationships to er-all policy on an equal professional footing with her policy-making staff members. The operations ould be carried on as a unit activity with close coordi- ition with other units, since nutrition problems are herent in most health department activities. In certain ograms it may be desirable to assign such personnel to her major divisions or even other state departments, ch as those responsible for institutional care. However, these instances such personnel should receive their chnical direction from the director of the nutrition unit.

Let us now examine the situation at the Federal level. e Children's Bureau of the Federal Security Agency[4] s been directed by law to investigate all matters re- ting to the welfare of children and child life. This reau employs only five nutritionists, but through ants-in-aid the influence of this bureau has been multi- ied many times in that it has enabled most states to nploy nutritionists in the field of maternal and child e.

The Bureau of Human Nutrition and Home Eco- omics of the Department of Agriculture is interested the economics of food production and distribution and food composition and consumption in relation to onomic status and the recommended dietary allow- ices. It concerns itself with menu planning and prepara- n and the promotion of better balanced and more gen- ous consumption of food for the entire population. heir full-time staff does not include physicians, although ey employ a few as medical technicians on a per diem sis. They operate through agriculture experiment sta- ons, departments of agriculture and home economics extension centers and universities, state and local nu- ition committees, and school lunch programs. This tivity at the Federal level is efficiently and aggressively irected and promoted.

Since November, 1950, when its Nutrition Branch as liquidated by order of the Bureau of the Budget, the nited States Public Health Service has had no field utrition activities either in its public health or its re- arch branches. Thus, as of today the Public Health ervice is completely out of contact with the nutritional ealth of the people in the United States. Furthermore, is not in a position to convert the many advances in utrition knowledge into field programs of practical enefit to the health of the people. The nutrition di- isions or bureaus of the various states have no integra- on, direction, or assistance from a Federal counterpart.

This situation has been roundly deplored by the Coun- il on Foods and Nutrition of the American Medical As- ociation, the Food and Nutrition Board of the National esearch Council, the American Public Health Associa- ion, and numerous other organizations and private per- ons who are interested in public health nutrition. These organizations have urged that nutrition activities in the Public Health Service be reinstituted promptly and vigorously. This liquidation of the Nutrition Branch of the United States Public Health Service indicates that the Bureau of the Budget was not sold or could not be interested in the medical aspects of field programs in nutrition. It is not interested to the extent of allowing money already appropriated to be used in field programs on nutrition as a factor in diseases such as hypertension, arteriosclerosis, anemia, and obesity and in field programs on the nutritional therapy of conditions such as burns, shock, irradiation damage, peptic ulcer, and others. The Bureau of the Budget in explanation of its action stated, ". . . the reduction was based solely on the Bureau of the Budget's judgment that in the present circumstances these demonstrations had a relatively low priority."[5]

What should be the nutrition responsibilities of the United States Public Health Service? First, there should be programs which apply existing knowledge and techniques in public health activities so that the people of the United States may benefit from the knowledge already possessed. These should be conducted as a part of over-all public health programs and should be the responsibility of that branch of the Public Health Service which is accustomed and experienced in dealing with state and local health departments, namely, the Bureau of State Services. Secondly, research activities are needed to develop methods, techniques, and new knowledge which can be applied in public health nutrition programs, to determine by surveys and examinations the nature and extent of the important nutrition problems of the people, and to solve by technical research the problems which may be obstacles in the public health nutrition programs. This is a proper function of the Research Branch of the Public Health Service, that is, The National Institutes of Health. May an enlightened Congress soon direct and provide for some such public health nutrition programs.

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4. Haseltine, M. M.: Nutrition Work of the Children's Bureau, Nutrition. Observ. 11: 22-24 (April) 1950.

5. Memorandum from R. L. Seggel, Bureau of the Budget, to Kenneth Miller, Budget Office, Federal Security Agency, on Reduction in the Public Health Service Program of Nutrition Demonstrations, Dec. 7, 1950.

Estrogens and Cancer.—It has not been shown that estrogen effects lead to cancer in the human being, but there are several interesting suggestive relationships. In the histories of individuals developing carcinoma of the endometrium, menorrhagia, late menopause, and hyperplasia of the endometrium, all conditions associated with hyper- or persistent estrinism, appear much more commonly than they do in women without carcinoma of the endometrium. The incidence of carcinoma of the endometrium in cases of granulosa cell tumor of the ovary is four or five times the general incidence. In addition, there have been several cases of carcinoma of the endometrium reported following prolonged estrogen therapy. It is also known that carcinoma of the uterus is relatively rare in women who were castrated before they reached the age at which they would normally cease menstruating. Finally, one of the first observations suggesting that there might be a relationship between ovarian function and the growth of breast cancer was that occasionally large, fungating mammary cancers recede in a remarkable fashion after castration alone.—Daniel G. Morton, M.D., The Relation of Pregnancy to Malignancy, *Journal of the Kansas Medical Society*, September, 1951.

RESPONSIBILITIES IN HOSPITAL CONSTRUCTION

Robin C. Buerki, M.D., Philadelphia

Dr. Jean S. Felton, secretary of the Section on Preventive and Industrial Medicine and Public Health, tells me that the primary goal in the presentation of this symposium on a critical evaluation of public health programs is to have the participants review critically and objectively the actual progress being made in various public health programs throughout the country. He tells me further that the discussions should be "earthy, completely realistic, and fact facing." I assure you that no terms of reference could be more to my liking since those are the conditions under which I like to discuss any and all problems with which I may be concerned.

I am particularly pleased to have this opportunity to discuss the Hill-Burton Hospital Survey and Construction Program since I was one of the original hospital representative members of the Federal Hospital Council. This council is composed of eight individuals, whom I might modestly describe as being well-known in their respective fields; four of these are persons interested in the operation of hospitals or in the production of hospital service, and the other four represent the general public interest. The Surgeon General of the Public Health Service is the ex officio chairman of the council and is responsible for the over-all administration of the program.

The functions of the council are both controlling and advisory. They are controlling in that no administrative regulations may be issued by the Surgeon General except by and with the approval of the council. In this respect, the Federal Hospital Council is unique in the Federal government. No other citizen council, to my knowledge, has such authority conferred by Federal law.

In setting up this symposium, Dr. Felton has stated six general questions as a framework within which each of the seven program subjects might be discussed. I believe that these six questions express very well the points which we need to develop in our consideration of the Hill-Burton Hospital Survey and Construction Program.

ACCOMPLISHMENTS OF PROGRAM

The first question is, "Has the Hill-Burton Program accomplished the purpose for which it was originally established?" In order to answer this question, it is necessary to go back to the year 1940. At that time, the nation was just emerging from a 10-year period of acute depression. During that decade, there was very little new hospital construction throughout the country. While the population was increasing along with the demand for hospital care, our hospital resources were virtually standing still. Even worse than standing still, they were going backward in the neglect of normal maintenance. This fact was forcibly driven home to us when, in 1940, we entered a period of mobilization and preparations for war, which began the following year. We found then that we were totally unprepared to meet the extraordin needs for hospital and public health care in areas vital the mobilization of the nation's forces. We had to ma this crisis wherever and whenever an emergency aro through direct Federal aid to the community concern This Federal aid consisted of from partial all the w to complete Federal financing of new hospitals and heal centers. Under these conditions, surveys of need were best sketchy and the interrelated needs of other co munities could be given scant consideration.

Realizing this, the American Hospital Association, cooperation with the other national hospital associatio decided that it would be necessary to make a thoro evaluation of the hospital problem which would be fac the nation at the end of the war. Accordingly, early 1943, the American Hospital Association establishe committee on postwar planning. It was the functio this committee to determine ways and means of appr ing the nature and extent of the hospital problem. T committee decided that an independent fact-finding co *mission was the means of choice. It then enlisted* the of a number of philanthropic foundations, and thro their financial assistance established what was know the Commission on Hospital Care. This commission composed of 20 nationally-known individuals repres ing a rather complete cross section of American life interests. The American Medical Association, I m add, was well represented. The terms of reference of Commission on Hospital Care were quite broad. Bri they were to evaluate the current situation regarding pital service throughout the country and to recomm measures for its improvement.

The commission put in two years of intensive su work on this problem, beginning in October, 1944, ending its work in October, 1946. The report of the C mission on Hospital Care represents a landmark in development of better hospital care in the United Sta

Among the many important findings of the Com sion on Hospital Care was the fact that the nation short of hospital beds of all types by many hundred thousands, and that the distribution of existing hospi was very spotty. The commission found further that increasing technical requirements of modern medic were such that the deficiency of hospital beds through the country could not be met through the traditio channels of private philanthropy. The only alternati the commission found, was a program of Federal ass ance in the construction of additional hospital beds.

The three national hospital associations—the Am can, the Catholic, and the Protestant—accepted th recommendations, but I am sure not without consid able misgivings. Never before, except in brief periods emergency, had the Federal government entered into field which had historically and traditionally been matter of local responsibility. The question upperm in everyone's mind was, "Can the hospitals accept F eral assistance and still maintain their autonomy a sense of local responsibility which are the *sine qua n*

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ctive hospital operation?" We all felt that it could
ıe if handled in the proper manner, and, since we
ɔ alternative, preparations were made to develop a
ıl program which would accomplish the desired
ithout disrupting our traditional democratic proc-

ɔpe it is clear to everyone that the Hill-Burton legis-
was not a bill concocted by the politicians and
on an unsuspecting public. On the contrary, it was
a grass-roots movement spearheaded by the offi-
f the various hospital organizations and concurred
l assisted by the American Medical Association.
tual drafting of the legislation occupied the intense
st of these organizations for a period of many
ıs. Chief among the objectives of the Hill-Burton
tion were the following:

hat major controls be vested in the state governments
han in the Federal government.
hat exact surveys of need should be carried out prior to
nstruction. Once the needs had been determined, con-
ɔn should proceed in order of relative priority based on

hat each community should be required to furnish a
ıble share of the cost.
hat the hospitals constructed should represent the latest
ıg in modern design and construction.

keeping with the nonpolitical nature of this legisla-
even its sponsorship in the Senate was bipartisan.
this background, it is not surprising that no
sition was encountered to the passing of this legisla-
which was enacted into law in August, 1946.
he Hill-Burton Program, then, accomplishing what
xpected of it? It was expected that the states would
a careful survey of their present and long-range
for hospitals and health centers. This has been done
e first time in history, and I may observe here that
ırveys showed a total hospital bed deficiency of
900,000 beds of all categories. It was expected
rst needs would be met first and, generally speaking,
communities were in the greatest need. This ex-
tion has been met admirably. Approved projects
been in order of need, and the great majority have
into rural areas. Some 1,500 projects, all told, have
approved. When completed, these will add about
0 beds to the nation's resources; in addition, some
ealth centers will be added. I can say, without fear
ntradiction, that the Hill-Burton Program has ac-
lished the purpose for which it was intended far
ıd the expectations of all of us in the hospital field.

RETURN ON INVESTMENT

. Felton's second question was, "Does the Hill-
ɔn Program represent a sound investment from the
of view of return from the money involved?" Since
, Congress has appropriated 385 million dollars
is purpose. The average matching funds contributed
ıtes and local communities have been about double
ımount, involving a program of slightly more than
ion dollars invested in new hospital and health cen-
cilities since 1947. Is this a sound investment? In
rst place, it is virtually impossible to place a price
n health. We can only consider whether the invest-
is sound in a narrower sense, that is, in relation
e cost of other hospital units constructed outside
Iill-Burton Program. Although the new Hill-Burton hospitals are models of modern design and equipment, the cost compares very favorably with those constructed outside the program. Actually, the average cost of hospitals under this program has been about $13,000 per bed, in the case of new general hospitals. These costs, as many of you will recognize, are considerably below that of many other hospitals built independent of Federal aid.

PROGRESS IN PUBLIC HEALTH

The third question is, "Is the Hill-Burton Program spelling progress in public health?" Although in the past we perhaps have not always been accustomed to thinking of such things as hospitals in the same category as public health, I am doing so here. Anything that contributes to the health of the general public is public health, and in this, hospitals are an outstanding example. We can say without any hesitation whatsoever that the Hill-Burton hospitals are contributing to public health, both directly and indirectly. Most of the new hospitals are in areas which never before had adequate hospital service. In many parts of the country, we are seeing health centers designed primarily within the concept of preventive medicine built as an integral part of these hospitals, a movement which in my opinion is long overdue.

ALTERATION OF PROGRAM'S FORMAT

The fourth question is, "Should the format of such a program be altered?" The Hill-Burton Program is widely considered as being one of the most ideal pieces of health legislation in existence for the following reasons: It recognizes a large element of state and local determination without unnecessary Federal controls. It has brought about a better understanding and spirit of cooperation between hospitals and government—state, local, and Federal. It stimulates local communities to help themselves, thus assuring continued interest and support of these new hospitals.

RESPONSIBILITIES OF PUBLIC HEALTH PERSONNEL

The fifth question is, "What are the responsibilities of public health personnel?" This question may be applied to the responsibilities of the state agencies administering the Hill-Burton Program; with relatively few exceptions these agencies are the state departments of public health. Their responsibilities are quite clearly defined. I shall mention just a few of these:

1. A continuing survey of hospital and public health requirements and a preparation of plans to meet these needs.
2. Consultation with local communities as to the size and design of hospitals needed and as to the requirements of staffing and operation.
3. The approval of individual projects. I wish to make it clear that the selection and approval of projects within the state is a function of the state, and not of the Federal government.
4. Improvement in the quality of hospital service through licensure regulations.

STATE EMPHASIS VERSUS NATIONAL EMPHASIS

The sixth and last question proposed is, "Should emphasis be more at a local level (in this instance meaning state), or national level?" In my opinion, the present balance of emphasis and responsibility is ideal. The more important of the state responsibilities I have just mentioned. Federal responsibilities are limited to such broad considerations as are necessary to keep a consistent approach throughout the nation; this includes the approval of state plans and the approval of architectural plans, as well as expert consultation on any and all phases of the program as may be required by the states. The approval of architectural plans, incidentally, is, in my opinion, one of the most fruitful products of the Hill-Burton Program. Although many hospital administrators, and architects in particular, viewed this move with some apprehension in the beginning, they are now all staunchly behind the United States Public Health Service architectural regulations. In answer to an additional question, "Has it been wise to turn hospital design and utilization over to lay personnel?" I wish to make it completely clear that the pattern of hospital planning, design, construction, utilization, and administration under the Hill-Burton Program is in nowise different from that which prevailed before or which prevails now in hospitals in no way connected with the Hill-Burton Program, except for better surveys of need and better planning, design, and construction of the hospitals under the program. Otherwise, these functions are carried out by the same types of individuals as in the past. If there is any discernible difference, it is that more, rather than less, medical thinking has gone into the design of hospitals.

COMMENT

I am thoroughly in favor of the Hill-Burton Hospital Survey and Construction Program, both in principle and practice. It is true that some of us who work in larger cities would have liked to have had more help for our hospitals from this source. We realize, neverthele the basic purpose of the program is not to build mo in the larger metropolitan centers until the rural were more nearly satisfied. We are all hopeful, ho that the program will be continued and that even when the rural needs have been more nearly satisfi will be able to get assistance for the expansion teaching facilities. Both the Federal and the state a ities are fully aware of the vital importance of the ing institutions in maintaining the flow of doctors, and other personnel into our hospital system. They looking forward to meeting that need just as soon cumstances will permit.

All of us in the hospital field who have a special est in this program have been happy to note th American Medical Association has actively sup it from the very beginning. Only a few months ago, the possibility of increasing the annual approp from 75 million dollars to 150 million dollars was consideration, the American Medical Association' islative Committee vigorously supported this actio

CONCLUSION

In conclusion, the Hill-Burton Program is of s portance to our entire medical economy that its c understanding and full support are warranted by one who is concerned with bringing better healt American people.

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MATERNAL AND CHILD HEALTH PROGRAMS

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Maternal and child health programs really need to be discussed in relation to public health programs in general, since they represent phases, although important phases, of general public health activity. Public health begins when certain conditions exist: First, medicine accepts a theory of rational causation of disease, indicating a point of application for preventive measures. Then scientific methods become available for the prevention, amelioration, or cure of disease. Finally, the community accepts responsibility for the distribution of appropriate services. Health departments and their programs take their origin and growth from these three principles.

A hundred years ago maternal and child health programs were unknown. It took the combined efforts and persistence of Simon, Southwood Smith, Pasteur, Semmelweis, Jacobi, Holmes, Baker, Rotch, and Franklin Roosevelt to establish the foundation on which modern programs of mother and child care rest. Public health operations in the child health field antedated those in maternal health, for a number of reasons. Concern for the mother was reflected in improvements of hospital conditions and facilities and education of physi eliminate the risk in delivery itself. The success o and earlier antiseptic techniques in reducing risk obscured other factors contributing to mater tality susceptible of antepartum control. Besides in childbirth was accepted—the possibility of c without danger had to await acceptance of preg the summer months.

Developments in pediatrics, on the other hand, almost immediately to techniques of preventi shocking infant mortality rates, with the conce of infant deaths in the summer, gave sharp im preventive thinking. New York City in 1907 infant mortality rate of 145 in January and August.[1] Infectious disease caused one-half th deaths at that time, and the classification "diarrh resented practically the whole of the excess mor a physiological function.

The first baby health station was established Josephine Baker in 1908 in New York City. This public health function was preceded by priva dowed milk stations in Paris in 1892 and in Ne in 1898. The purpose of the baby health station o was to provide clean milk, modified formulas, and tion.[1] In the growth of these stations, as w clinics, child health conferences, or what you original purpose has not been lost or abandone

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Read in the Symposium on a Critical Evaluation of Public Health Programs before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 15, 1951.

[1] Baker, S. J., in W. Park: Public Health and Hygiene in Contributions by Eminent Authorities, Philadelphia, Lea & Febiger, 1928.

nuted to meet changing needs. By definition today, ll-baby conference concerns itself with general ı supervision of all infants and preschool children emphasis on (1) prevention of communicable dis- (2) establishment of sound nutrition and good habits, (3) emotional adjustments of mother and (4) providing correction of physical defects and tion of incipient deformities.[2]

e care of the pregnant woman and the provision of tal services grew naturally out of child health serv- ıs a means of reaching the mother before the child orn. In this way it was hoped to reduce prematurity ch caused 30% of infant deaths), to make the er aware of her child's needs early enough to assure ery of a sturdy, healthy infant, and to wipe out con- ıl syphilis and reduce maternal mortality. In the in- ning years infant mortality has been reduced to a on of what it was and maternal mortality reduced to finitesimal part of previous devastation (Tables 1 [3]). "From 1930 to 1945 deaths from diphtheria ed from approximately 15 to 4 per 100,000. The rate among preschool children has declined from ximately 20 deaths per 1,000 population in 1900 . approximately 1 in 1945."[4] Obviously the public h programs of maternal and child care did not of selves produce the results that were accomplished. ıe filtration and chlorination of community water lies, the installation of community sewage-disposal ms, pasteurization of milk, increasing availability utilization of hospitals for delivery (90% of Balti- 's babies were born in hospitals in 1949), all oper- during the same period of time as the maternal and health programs, played major parts in this mag- nt achievement. Certainly the discovery and wide f antibiotics more recently contribute heavily to the . However, the immunization programs, stimulated encouraged by the child health centers, did their too. It has to be pointed out in this connection gh, that in the most recent report on child health es (for the years 1945-1946)[4a] it is stated that only of the total volume of child care is given by health cies and only 6% of infants and preschool children ve any services at all from the well-child conference.

TABLE 1.—*Infant Deaths by Broad Cause Groups, Baltimore, 1929 and 1949*

	1929 *		1949	
Group	% of All	Rate †	% of All	Rate †
ctious disease	45.4	33.12	17.3	5.4
genital malformation	7.0	5.08	14.0	4.37
maturity	28.2	20.54	33.2	10.37
ıry at birth	5.7	4.15	13.8	4.33
ers	13.7	9.97	21.7	6.79
Total	100.0	72.86	100.0	31.26

corded births.
aths in first year of life per 1,000 live births.

nder the circumstances, one cannot assess properly role that maternal and child health programs have ed and continue to play in the prevention of disease the postponement of death. But there can be no t that by example and demonstration these programs brought home to the people and the practicing ician the kind and quality of service that is neces- for good preventive medicine. In the development of programs emphasis has shifted from the obstetrician's goal of hospital delivery for every pregnant woman, for example, to adequate prenatal supervision for every pregnant woman. Well-child care has moved from the early emphasis on feeding (really sanitation considerations) to emphasis on immunization and prevention of communicable diseases other than diarrhea, a fairly complete program of health supervision, and a concern for the emotional and social well-being of the child in addition to the physical.

TABLE 2.—*Maternal Deaths by Broad Cause Groups, Baltimore, 1925-1929 and 1945-1949*

	1925-1929		1945-1949	
Cause Group	% of All	Rate *	% of All	Rate *
Toxemia	18.4	0.97	19.5	0.21
Hemorrhage, trauma, shock	39.6	2.10	35.4	0.37
Sepsis	35.1	1.86	34.5	0.37
Others	6.9	0.37	10.6	0.11
Total	100.0	5.3	100.0	1.06

* Maternal deaths per 1,000 live babies.

In view of these facts, how can existing programs be evaluated? First of all, it must be recognized that the general rate of decline in the mortality rates has not been equal for all classes of Americans or in all areas. While rural residents are beginning to share the advantages of modern life, their health record has not kept pace with the record of urban dwellers. "Children in or near cities receive 50% more care than those in isolated counties."[4] Typhoid fever, malaria, and hookworm are predominantly rural diseases. Infant mortality in cities of 100,000 or more in 1948 was 28.9 and in places of 2,500 to 10,000 population, 36.[5]

Another significant differential mortality rate is evidenced in the distinct disadvantage of the Negro. The white infant mortality rate for 1948 was 29.9 (26.6 in cities of 100,000 or more) and the nonwhite rate 46.5 (56.3 in places of 2,500 to 10,000 population).[5] The striking disparity between the infant mortality rate of the white city dweller and the nonwhite small-town dweller (26.6 as compared with 56.3) should give pause to any premature self-congratulations. Finally, there is the economic differential, which militates against equality of care or service for the low-income groups. The percentage of hospital births and correlated infant and maternal mortality is associated with availability of facilities.[6]

Over 70% of children registered in Baltimore City Health Department well-baby clinics were Negro in 1949,[7] although only 20% of the population is Negro. Here low income and the pattern of segregation both play a part. Few, if any, Negro children in the eligible age group receive any well-baby care other than in city clinics, yet the number of Negro children seen in these clinics is only a fraction of the children in that age group. And what of those parts of the country not so liberally supplied with health department services as Baltimore? In isolated rural communities of Maryland only one-third as many children receive well-child care as in metropolitan adjacent counties.[8]

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[2] Smillie, W. G.: Preventive Medicine and Public Health, New York, The Macmillan Company, 1947.

[3] Personal communication to the author from the Statistical Section, Baltimore City Health Department.

[4] Hubbard, J. P.: Highlights of American Academy of Pediatrics Study and What They Mean for Improvement of Child Health, Am. J. Pub. Health **40**: 385 (April) 1950.

[4a] American Academy of Pediatrics, Committee for the Study of Child Health Service: Child Health Services and Pediatric Education: Report of the Committee; with the Co-operation of the United States Public Health Service and the United States Children's Bureau, Oxford, Commonwealth Fund, 1949.

[5] Infant Mortality by Race and by Urban and Rural Areas, Nat. Office of Vital Statistics, Special Report Vol. 35, No. 17, Federal Security Agency, United States Public Health Service, Oct. 16, 1950.

[6] Mott, F., and Roemer, M. I.: Rural Health and Medical Care, New York, McGraw Hill Book Company, Inc., 1948. Ciocco, A., and Altenderfer, M. E.: Birth Statistics as Index of Interdependence of Counties with Regard to Medical Services, Pub. Health Rep. **60**: 973 (Aug. 24) 1945.

[7] Baltimore City Department of Health, 135th Annual Report, 1949.

Whatever deficiencies programs of this sort have, they stem mainly from the unfortunate traditional separation of care for the well and the sick. In practice today two sets of people are concerned with the child, generally in no contact with one another and without real knowledge of the whole child. The ideal goal, unification of child care, is to have one physician or a group of physicians undertaking complete supervision of the child in health and disease. The programs that now exist, however, are necessary for all the reasons that have been given: technical separation of care and sectional, economic, and rural deficiencies. The existing programs will continue until physicians develop the same enthusiasm and qualify themselves for health supervision as they have developed and qualified for in care of the sick.

Ultimately, the preventive medicine minded practitioner will assume the physical and emotional supervision in the field of maternal and child health in his office or in a group-practice center. By giving parents guidance and support, he may reduce the need for so many public health clinics or conferences. Right now three-fourths of private medical care of children is in the hands of general practitioners.[4a] The preventive medicine minded practitioner of the future, whether he is a generalist or specialist, will have to be oriented in the field of health promotion and disease prevention and not tied to therapeutic medicine as completely as he is today. The sectional, racial, and economic groups underprovided for now and in need of community service progra have been fitted into the private practitioner's through necessary organizational changes. Unt time, however, the prenatal and the well-baby clini continue to provide and extend existing services. In B more last year as many women went without p care at all as were seen in the Health Department c

In a period of crisis and clash of arms, when good p ical and emotional development of children is of th most importance, value and priority of programs as increasing weight. Three questions will have to be a and answered: 1. Why are we doing this? 2. Are we d it well? 3. What else should we do?

Both local and national officials bear responsibili the future development of maternal and child health p grams. Milk and water sanitation cannot be dissoci from child hygiene. Availability of hospital beds a training of obstetricians cannot be divorced from ternal-care programs. Since maternal and child h programs are aspects of total public health prog interdependent and having no really independent e ence, for planning purposes, national organization is viously necessary. Without national assistance local grams tend to be chaotic and to run off into chann lesser importance, and communities with the gr need have the least resources. Thus, on a national consideration can be given varying public health in different parts of the country and assistance adj in accordance with those needs and the ability specific community to meet them. However, pro need to be supported, encouraged, and strengthe the local level. Without local interest and local su public health programs have no reality and fail to trate into the depths of local need.

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8. Maryland Chapter, American Academy of Pediatrics: A Child Health Services in Maryland, Baltimore, 1950.

TREATMENT OF RHEUMATOID ARTHRITIS WITH NITROGEN MUSTA

PRELIMINARY REPORT

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One of us (J. D.)[1] recently reported the initial results obtained in the treatment of rheumatoid arthritis with nitrogen mustard. It was believed that this treatment might well be useful because of the well-known effect of cortisone and corticotrophin (ACTH), since, in the similar effects they produce, a certain relationship could be seen to exist between these hormones and nitrogen mustard.

It is a fact that one of the most constant eff nitrogen mustard, observed in the treatment of kin's disease, is the progressive decrease in lymph —they may even disappear completely—and t crease in the eosinophils. The same results can a obtained with the hormones ACTH and cortison the other hand, Chanutin and Ludewig[3] have d strated that the suprarenal cortex undergoes a plasia when acted upon by vesicating substances. Karnofsky and his colleagues[4] have reproduced toms similar to those of the "alarm" syndrome they have used nitrogen mustard. Recently, Betz, ghem and Lecomte[5] have also reported on the a hyperplasia and the increase in 17-ketosteroids wi use of nitrogen mustard.

From the Medical Clinic and Institute for Medical Research, Madrid University.

1. Jiménez Diaz, C.: Rev. clín. españ. 37: 410, 1950.
2. Dougherty, T. F., and White, A.: Science 98: 367, 1943. Thorn, G. W., and others: New England J. Med. 241: 529, 1949.
3. Chanutin, A., and Ludewig, S.: Endocrinology 38: 376, 1946.
4. Karnofsky, D. A.; Graef, I., and Smith, H. W.: Am. J. Path. 24: 275, 1948.
5. Betz, H.; Heusghem, C., and Lecomte, J.: Rev. belge de pathologie et medicine experimentale 19: 251, 1949.

n the first place, two patients with rheumatoid arth- ; were treated; both cases were chronic and had been ted by different methods, especially by chrysotherapy the association of desoxycorticosterone (doca®) ate U. S. P. and ascorbic acid, with negative results. patient had been suffering for 11 years during the five of which she had been bedridden with extremely ful swelling of the knees, ankles, and finger joints. re were no obvious results after the first injection of g., apart from stopping a diarrhea that had persisted several months. The second injection, on the other d, produced an astonishing effect: the patient's con- on was rendered almost painless, the joint swellings e reduced considerably, she began to move her limbs fingers, and she rose from her bed and could walk. m the fourth injection of this course of treatment the ful symptoms disappeared except for a slight ache in knee, but the patient could move her arms and legs perfect ease. When she was seen one month later, condition was still satisfactory.

he other patient had simultaneous ankylosis of the joints and lumbar part of the spine and painful swell- at the other joints, which rendered him immobile. too, became free of pain at the second injection, and could move his previously swollen joints, although, as to be expected, the bony ankylosis of the hips and bar part of the spine remained unaltered. He did, vever, recover all movement of the arms, wrists, and er affected joints.

The results were still evident when he was seen two nths after the treatment had been stopped.

ince we treated these two patients we have tried the e procedure on seven more. The spectacular results ained in the first patient, with disappearance of pain of the exudative phenomena, as well as the recovery oint movements, have been achieved in four patients, le in two others the improvement has been less ob- us owing, as in the second case, to bony ankylosis or versible muscular retraction. In the remaining patient re has been improvement only insofar as the pain has ppeared and the exudative phenomena have re- ssed.

o far we have had no opportunity to treat patients h cortisone and cannot say if its effects are more rked than those we have observed with the use of ogen mustard, but we should think it difficult: we e never obtained such results with any of the other rapeutic measures that we have employed up to the sent. The effects of nitrogen mustard on rheumatism allel those on the blood cell count; the fall in eosino- ils from an initial count of 100-200 to values of 20-50 usual after approximately the third injection and is n greater in cases in which the drug's effect is more ense. The sedimentation rate increases initially and n falls, but we have never seen it come down to nor- l. The elimination of 17-ketosteroids in urine is in- ased during treatment.

Inspired by certain similarities, we have begun to ap- nitrogen mustard in cases of prolonged status asth- ticus. The first patient we saw had been in a sorry plight for the past three months before examination. For the last few nights she had not been able to lie down, and in the daytime she had to have several injections of epinephrine U. S. P. (adrenalin®) and ephedrine U. S. P. The night after her first injection of nitrogen mustard she found herself greatly improved and was able to sleep comfortably. On the following morning she had no asthmatic symptoms, and all palliatives were suspended. After the second injection she felt perfectly well and, at this writing, still does. Her eosinophil count dropped from 200 to 50 after the first injection. The second patient was not so seriously ill, but she had constant dyspnea and a persistent cough with diffuse breath sounds. After the first injection her dyspnea, cough, and auscultatory signs disappeared.

It is still much too soon to be able to draw conclusions as to the potentialities of this therapeutic measure, but we maintain that the dramatic results obtained in five, and the great improvement in three, out of nine patients treated so far are sufficient justification for drawing attention to the treatment so that its effects can be checked by other observers. The results obtained in our two asthmatic patients confirm the versatility of nitrogen mustard in that its action can be extended to the same diseases as that of ACTH. Green [6] has recently pointed out the relation between the activity of these hormones and their antimitotic action, and this would be a further argument in favor of this hypothesis insofar as both ACTH and cortisone have an antimitotic, lympholytic, and eosinopenic action.

We have a large number of patients under treatment at the present moment and hope soon to be able to give a detailed report on our observations.

SUMMARY

A report is given on the remarkable results obtained with the use of nitrogen mustard in the treatment of rheumatoid arthritis. Of nine patients treated, five improved extraordinarily, with complete disappearance of the pain and swelling of the joints and recovery of normal movement. In three other patients the ensuing improvement was considerable, even though not so complete. Two patients with status asthmaticus were also treated, the dyspnea disappearing after the first injection.

Madrid University.

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[6] Green, H. N.: Brit. M. J. 1: 1165, 1950.

Prevention of Mumps.—Results indicate then that immunity to mumps can be induced by subcutaneous vaccination with inactivated virus, that the resistance thus produced is transitory; and that the duration of immunity depends on the height of the antibody level attained. From these suggestions it is likely that more extensive protection may be achieved if the interval between vaccination and exposure is less than nine months, but whether it will be possible to immunize in the face of an epidemic in order to prevent further generations of cases or to abort the disease in individuals vaccinated shortly after exposure remains to be ascertained.—Gertrude Henle, M.D., and Werner Henle, M.D., Studies on the Prevention of Mumps, *Pediatrics,* July, 1951.

RUPTURE OF CORPUS LUTEUM WITH PRODUCTION OF HEMOPERITONEUM

REPORT OF NINETEEN CASES

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Hemoperitoneum resulting from rupture of a corpus luteum is not an uncommon condition, although the total number of cases reported in the literature is relatively small. In the majority of these cases erroneous preoperative diagnoses, such as acute appendicitis, ruptured extrauterine pregnancy, and salpingitis, were made. Morton,[1] in 1931, collected 26 cases of ruptured corpus luteum and found that in all of them the condition had been misdiagnosed. In none of the 11 cases of ruptured corpus luteum reported by Kretzschmar and Arnell,[2] in 1936, was the condition recognized preoperatively. Likewise, an erroneous diagnosis was made in the 10 cases of bleeding corpus luteum reported by Israel,[3] in 1937, as well as in the 15 cases reported by Pecman [4] and the 12 cases reported by Weil.[5] In our series, of 19 cases, a correct diagnosis was established in only one. This preponderant error in diagnosis is probably due to the lack of appreciation of the clinical entity of ruptured corpus luteum. While follicular rupture, better known as *Mittelschmerz,* is well recognized, it seems that corpus-luteum rupture is seldom considered as a possibility.

In an attempt to reevaluate the symptoms and physical findings in patients with ruptured corpus luteum and to bear out some of the pertinent data on the subject, the following study was undertaken.

The material is from the department of gynecological surgery of St. Joseph's Hospital in Milwaukee, covering the period from January, 1944, to June, 1950. During this period there were 19 patients with intraperitoneal hemorrhage resulting from rupture of the corpus luteum. In all these patients the ovarian lesion was confirmed by microscopic examination of the specimen submitted to the laboratory.

ANALYSIS OF CASE HISTORIES

The ages of the patients ranged from 13 to 45 years (Table). Three patients were under 20; 11 were between 20 and 30; four were between 30 and 40, and one was over 40. The average age was 26. Seventeen were married, and two were single. Most of the patients had not been pregnant or had borne but one child. Eight were nulligravid and nulliparous; five, primigravid and primiparous; three, secundigravid and primiparous; one, secundigravid and secundiparous; one, trigravid and nulliparous, and one, quadrigravid and quadriparous.

The menstrual history revealed that 13 patients h
regular periods up to the onset of the ovarian ruptu
and four, irregular periods. Patients with regular perio
had cycles of 26 to 30 days except one, who had a 3
day cycle. Two of the patients were pregnant at the ti
of rupture—the gestation period being two months f
one and five weeks for the other. Rupture of the corp
luteum occurred anywhere between the 16th day of t
cycle and the first day of menstruation, in the majori
occurring between the 18th and the 24th day. In t
patient with the 35-day cycle, rupture took place on t
first day of the flow.

Clinical Findings.—The blood pressure taken on t
patient's admission showed slight hypotension in a f
cases, while in the majority it was within normal lim

The pulse rate ranged from 72 to 110 a minute, w
an average of 87 a minute. The temperature was nor
or only slightly elevated in all the cases. The hig
temperature was 99.6 F.

Moderate anemia was seen in a number of patie
The red blood cell count ranged from 3,370,000
4,990,000 per cubic millimeter, with an average
4,070,000. Nine of the patients had a count be
4,000,000. The leucocyte count was within normal li
in 12 patients and moderately elevated in seven patie
ranging from 10,550 to 23,050 per cubic centim
The differential cell count was not significantly alte

Pain was a constant symptom in all the patients
varied in intensity with each one, *depending* upon
amount of hemorrhage. The pain was characteristic
sudden in onset and was usually confined to the lo
part of the abdomen. In 12 patients the pain was
initely severer on the right side. In one of the patients
abdominal pain was generalized and radiated up
the shoulder.

The hour of day varied at which onset of pain occur
In four patients the pain developed early in the mor
and awakened them from sleep, and in one the
occurred suddenly during intercourse. The pain in sev
patients was characterized as cramping. Two pati
had the pain intermittently for two to three days be
it became severe enough for them. to seek admissio
the hospital.

Nausea was a common symptom and was presen
14 patients. On the other hand, vomiting was uncom
and was present in only two patients. Backache wa
minor complaint and was present in five patients. Dys
and urgency of urination following the ovarian rup
were noted in three patients.

The abdomen was soft, flat, or only slightly disten
Tenderness in the lower part of the abdomen wa
constant finding. It was more pronounced in the r
lower quadrant in 10 patients and in the left lo
quadrant in three patients, and was equal on the

From the Departments of Surgery and Gynecology, St. Joseph's Hospital, and the Marquette University School of Medicine.

[1] Morton, P. C.: Intra-Abdominal Hemorrhage of Ovarian Origin, New York J. Med. **32**: 196-197 (Feb. 15) 1932.

[2] Kretzschmar, N. R., and Arnell, R. E.: Symptomatic Rupture of Graffian Follicle or Corpus Luteum, Am. J. Obst. & Gynec. **32**: 308-311 (Aug.) 1936.

[3] Israel, S. L.: Ovarian Rupture Causing Intraperitoneal Hemorrhage, with Report of 10 Cases, Am. J. Obst. & Gynec. **33**: 30-38 (Jan.) 1937.

[4] Pecman, J.: Rupture of Corpus Luteum: Case of Ruptured Corpus Luteum of Pregnancy, Pennsylvania M. J. **50**: 1161-1163 (Aug.) 1947.

[5] Weil, A. M.: Ruptured Graffian Follicle and Corpus Luteum with Intra-Abdominal Hemorrhage Simulating Acute Appendicitis and Ruptured Ectopic Pregnancy, Am. J. Obst. & Gynec. **38**: 288-295 (Aug.) 1939.

s in six patients. Rebound tenderness was recorded eing present in six patients.

he time from onset of the abdominal pain to surgical rvention varied from 12 to 96 hours. In 12 patients ical operation was performed within the first 24 rs; in five patients, within 48 hours, and in two pa- ts it was delayed as long as four days. Fifteen of the ents walked into the admitting room of the hospital, four were brought in by wheel chair.

reoperative Diagnosis.—A preoperative diagnosis of ured corpus luteum was made in only one case. This ect diagnosis was established by a physician who had an opportunity to see a similar case previously and cognizant of the clinical entity of corpus-luteum ture. A diagnosis of acute appendicitis was made in cases, of ectopic pregnancy in three cases, of cystic ry in two cases, and of endometriosis in one case.

perative Procedure and Findings.—With a pre- iderant diagnosis of acute appendicitis, a gridiron or Burney incision was employed in 11 patients, a mid- suprapubic incision in seven patients, and a right tus incision in one patient.

ree blood was present within the peritoneal cavity ll the patients. It varied in amount from a few cubic timeters to "an abdomen full." In most of the patients, blood was confined to the pelvic cul-de-sac, in others vas generalized. Active bleeding from the ruptured pus luteum was still present in several of the patients he time the abdomen was opened.

Clinical Data on Nineteen Cases of Ruptured Corpus Luteum

Patient	Age	Para Gravida	Day of Rupture in Cycle	On Admission B. P.	Pulse	Temperature (F.)	Hemogram	Nausea	Vomiting	Tenderness	Rebound Tenderness	Rigidity	Preoperative Diagnosis	Right or Left Ovary
D. S.	27	P 0 G 0	35	102/70	96	98.6	R: 4,500,000 W: 5,650	+	+	+	..	—	Acute appendicitis	Right
T. K.	21	P 1 G 1	18	134/82	68	98.4	R: 4,190,000 W: 6,450	+	—	+	+	—	Ectopic pregnancy	Right
N. M.	31	P 0 G 3	..	112/70	90	98.2	R: 3,720,000 W: 6,350	+	—	+	..	—	Acute appendicitis	Right
T. H.	30	P 1 G 1	..	125/75	96	99.6	R: 3,810,000 W: 9,000	+	—	+	+	—	Endometriosis	Right
L. S.	19	P 0 G 0	24	112/64	100	99.4	R: 3,370,000 W: 10,550	—	—	+	..	—	Acute appendicitis	Right
M. F.	19	P 0 G 0	24	120/55	92	98.4	R: 3,990,000 W: 5,550	—	—	+	+	—	Acute appendicitis	Right
J. A.	29	....	22	100/70	72	98.6	R: 4,810,000 W: 8,950	..	..	+	..	—	Cystic ovary	Left
L. F.	21	P 0 G 0	16	110/70	84	99.2	R: 3,910,000 W: 10,400	+	—	+	..	—	Acute appendicitis	Right
D. O.	27	P 1 G 1	22	116/70	88	99.0	R: 3,870,000 W 11,300	+	—	+	..	—	Acute appendicitis	Right
J. H.	22	P 1 G 2	Pregnant 5 wk.	115/75	72	98.6	R: 3,850,000 W: 7,450	..	..	..	..	—	Ectopic pregnancy	Right
J. Y.	13	P 0 G 0	..	120/80	88	97.8	R: .... W: 17,500	—	—	+	..	—	Acute appendicitis	Right
L. S.	21	P 0 G 0	21	98/65	75	....	R: .... W: 16,550	+	—	+	..	—	Acute appendicitis	Left
R. W.	45	P 4 G 4	20	118/64	100	98.6	R: 210,000 W: 5,750	+	+	+	..	—	Acute appendicitis	Left
M. A.	26	P 0 G 0	21	120/80	110	99.0	R: 4,130,000 W: 16,000	—	—	+	+	—	Acute appendicitis	Left
G. K.	26	P 1 G 1	18	100/65	80	98.0	R: 4,990,000 W: 19,950	..	..	+	..	—	Acute appendicitis	Right
L. E.	33	P 1 G 2	Pregnant 8 wk.	94/60	96	98.6	R: 3,980,000 W: 8,500	+	—	+	..	—	Ectopic pregnancy	Right
R. L.	30	P 2 G 2	21	120/80	80	98.8	R: 3,680,000 W: 8,800	+	—	+	+	—	Ruptured corpus luteum	Right
J. K.	28	P 1 G 1	21	120/70	88	98.2	R: .... W: 23,050	—	—	+	+	—	Acute appendicitis	Left
V. H.	29	P 1 G 2	28	100/58	76	98.6	R: 4,058,000 W: 6,500	—	—	+	..	—	Cystic ovary	Right

The right ovary was found to be ruptured in 14 patients and the left in five. All the lesions were cysts or hematomas of the corpus luteum which varied from 2.0 to 4.2 cm. in diameter. Oophorectomy was performed in 13 patients; resection of the cyst, in three; salpingo-oophorectomy, in two, and simple closure of the rent with mattress suture, in one.

Abortion occurred in one of the pregnant females (Case 10; Table) after oophorectomy. It was necessary to extirpate the entire ovary in this case because there was strangulation by torsion of the pedicle, in addition to the rent present in the corpus luteum, from which active bleeding was taking place. In the other pregnant woman (Case 16; Table) gestation was uninterrupted after oophorectomy.

The appendix, together with the ovary, was removed in 13 patients and was not removed in one. Five of the 19 patients had had an appendectomy previously. Of the 13 appendixes, acute inflammation was found in two of them, and a fecalith in three of the uninflamed appendixes.

PRESENTATION OF CASES

Three representative cases of ruptured corpus luteum are presented.

M. A. (Case 14; Table), an unmarried woman aged 26, was admitted to St. Joseph's Hospital on Jan. 6, 1950, with the chief complaint of constant pain in the lower portion of the abdomen of 12 hours' duration. The pain occurred suddenly early in the morning. It was felt at first around the umbilicus and then shifted to the lower part of the abdomen. She experienced no nausea or vomiting. There was no change in the bowel habit and no urinary disturbance. Her last menstrual period was on Dec. 16, 1949. Periods had been regular and occurred every 28 days.

Physical examination showed the patient to be alert, cooperative, and in no acute distress. The temperature was 99 F.; the pulse rate, 110 a minute; the respiration rate, 22 per minute, and the blood pressure, 120/80 mm. Hg. The abdomen was soft, flat, and nonrigid. However, diffuse tenderness was present in the lower part of the abdomen. Rebound tenderness was also present. The bowel sounds were not unusual. No mass was palpable in the abdomen.

The hemogram showed 78% hemoglobin, 4,120,000 erythrocytes, 16,000 leucocytes, 6% stab neutrophils (band forms), 60% segmented neutrophils, 27% lymphocytes, 5% monocytes, and 2% eosinophils. The urine was normal.

A diagnosis of acute appendicitis was made, and the abdomen was entered on the right side through a gridiron incision. A considerable amount of free blood was found in the peritoneal cavity. The incision was extended downward to the symphysis pubis. A large hematoma of the corpus luteum, about the size of an orange, was found on the left side. Fresh blood was seen oozing through a rent in the wall. The right uterine adnexa were not unusual. A salpingo-oophorectomy was performed on the left side. The appendix was also removed.

The postoperative course was uneventful, and the patient was discharged on Jan. 14.

In this case, the clinical picture was strongly suggestive of acute appendicitis, especially in view of the initial site of the pain and the elevated leucocyte count. However, the absence of abdominal rigidity in the presence of tenderness and rebound tenderness was not consistent with such a diagnosis.

R. L. (Case 17; Table), a 30-year-old woman, secundigravid, secundiparous, entered St. Joseph's Hospital on May 17, 1950, with the chief complaint of having a constant pain in the lower portion of the abdomen. The pain had occurred suddenly that morning at about 6 o'clock and continued throughout the day, although the severity diminished slightly after the onset. She became slightly nauseated but did not vomit. There was no change in the bowel habit or any urinary disturbance. Her last menstrual period was on April 26. Periods had been regular and occurred every 26 days. She had no intermenstrual bleeding or discharge.

Physical examination revealed a well-developed, well-nourished woman, who did not appear acutely ill. The abdomen was soft, flat, and nonrigid, but diffuse tenderness was present in the lower portion. Tenderness was slightly more pronounced on the right side. Rebound tenderness was also present. The bowel sounds were normal. A bimanual pelvic examination revealed pronounced tenderness in the right uterine adnexa. While no definite mass was palpable, the right adnexa were felt to be slightly enlarged. The uterus was normal in size, shape, and position.

The blood pressure was 120/80 mm. Hg, the pulse rate 80 a minute, the respiration rate 20 a minute, and the temperature 98.8 F.

The hemogram showed 3,680,000 erythrocytes, 8,800 leucocytes, 1% stab neutrophils, 75% segmented neutrophils, 21% lymphocytes, 1% monocytes, and 2% eosinophils. The sedimentation rate was 20 mm. in one hour. The urine was normal.

A tentative diagnosis of acute appendicitis, and possibly disease of the uterine adnexa, was initially entertained; however, after reevaluation of the signs and symptoms presented by the patient, the diagnosis was changed to that of ruptured corpus luteum with intraperitoneal hemorrhage.

On exploration, a large amount of free blood was found in the peritoneal cavity. The right ovary was cystic, enlarged to the size of a tangerine, and filled with clotted blood. Free bleeding was present from a large rent in the cyst wall. The hematoma was evacuated; the lining was enucleated, and the collapsed wall was sutured with atraumatic® absorbable surgical suture U. S. P. The left adnexa were normal. Before closure of the abdomen, the appendix was extirpated as a *routine* measure, although not appear grossly abnormal.

The pathologic report was (1) ruptured corpus-luteum cy (2) subsiding appendicitis with periappendicitis.

The patient made an uneventful recovery and was disch on the seventh postoperative day.

The clinical picture in this case was fairly typic that of a ruptured corpus luteum. The sudden ons lower-abdominal pain during the second half of menstrual cycle in a woman whose periods had b regular was suggestive of a ruptured corpus luteum. T soft, flat, nonrigid, but tender abdomen, with def rebound tenderness, was strongly suggestive of free bl in the peritoneal cavity. The coexisting inflammation the appendix, although an incidental finding, emphas the importance of removing the appendix whene possible.

G. K. (Case 18; Table), a woman aged 26, entered St. Jos Hospital on Feb. 7, 1950, with the chief complaint of recu pain in the lower portion of the abdomen, of two days' dura The pain occurred suddenly on Feb. 5 and subsided after a two hours, but tenderness persisted. The following day the recurred, lasting for several hours, and its severity then ab Slight nausea and vomiting accompanied the pain. There no urinary disturbance or change in the bowel habit. Her menstrual period was on Jan. 1. Periods had been regular occurred every 28 days.

Physical examination revealed an asthenic woman wh peared ill but in no acute distress. The abdomen was soft, and nonrigid. Tenderness was present in the lower part o abdomen, especially in the right hypogastric region. There pronounced rebound tenderness. Borborygmi were slightly h active. The blood pressure was 100/65 mm. Hg; the pulse 80 per minute; the respiration rate, 22 per minute, an temperature, 98.0 F.

The hemogram showed 88% hemoglobin, 4,990,000 ery cytes, 19,950 leucocytes, 7% stab neutrophils, 86% segm neutrophils, and 7% lymphocytes. The urine was normal.

A diagnosis of acute appendicitis was made, and a incision was made on the right side. A large amount of blood was encountered in the peritoneal cavity, and the in was extended downward. As the free blood was aspirated, c blood was found in the pelvic cul-de-sac. The right ovary enlarged to the size of a hen's egg and was filled with dark b There was bleeding from a rent in the ovary. Salpingo- tomy was performed on the right side. The appendix was removed.

The patient made an uneventful recovery and was disch on the eighth postoperative day.

This case was atypical in that the pain was pr intermittently for two days and there were nausea vomiting. Apparently, the ovarian bleeding took intermittently. The elevated red and white blood counts may be attributed to hemoconcentration prod by the nausea and vomiting. The physical findings of abdomen—flat, soft, nonrigid, but tender abdomen rebound tenderness and normal borborygmi—were gestive of free blood in the peritoneal cavity, rather of appendicitis.

COMMENT

While rupture of the Graafian follicle is a nor process in the ordinary cycle of ovarian activity, rup of the corpus luteum is pathological and is accompan with active bleeding. The formation of a hematoma a cyst in the corpus luteum is known to be an import predisposing factor in the causation of the rupture, inciting factor producing the rupture is frequently icult to evaluate. Rupture is known to have occurred ing sleep,[3] during coitus,[6] during the performance of linary activity,[7] after an abdominal blow,[8] and during ianual pelvic examination.[9] Whatever the inciting ise may be, an increased intraluminal pressure in the pus luteum, whether produced from within or with- , seems to be the fundamental cause of the rupture. our series, rupture occurred during sleep in four pa- its, during coitus in one, and during the performance ordinary activity in 14.

The formation of corpus-luteum hematomas occur h much more frequency than is generally believed.[10] e majority of them, undoubtedly, undergo resorption hout clinical recognition. A few, however, go on to ture. Even with rupture, if bleeding is mild and is of rt duration, hemorrhage may go unrecognized. Fur- rmore, with moderately severe hemorrhage, bleeding y cease spontaneously and recovery take place without gical intervention. Unfortunately, the incidence of se cases is entirely unknown, for without surgical loration the diagnosis in such cases is a matter of jecture. In several of the cases here reported, bleeding s found to have ceased by the time the abdomen was ned.

Rupture of the corpus luteum may occur at any time ing the child-bearing period, from the onset of puberty the menopause, but most commonly occurs in the ing adult. Rupture has been reported to have occurred n after the onset of puberty. King and Hawes [11] cited ase in which rupture occurred in a 12-year-old girl, ose catamenia had begun one year previously. Foisie [12] cribed a case of a 12-year-old girl in whom rupture l exsanguinating hemorrhage occurred one month r the onset of the catamenia. Pedlow [13] reported a ilar case in a 12-year-old girl. These cases emphasize necessity of considering a diagnosis of ruptured pus luteum in the case of any female after the onset puberty.

The corpus luteum ruptures characteristically during second half of the menstrual cycle, and the Graafian icle, during the midinterval period. This time relation- p in the menstrual cycle is an important feature in erentiating rupture of a follicle and rupture of a pus luteum. Surveys by various investigators indicate t intraperitoneal hemorrhage is caused much more quently by rupture of a corpus luteum than by rupture a follicle. This preponderance of reported cases of pus-luteum rupture is partly explained by the fact t the resultant hemorrhage is much severer and more ductive of symptoms than that which accompanies licular rupture.

Clinical Manifestations and Physical Findings.—The st striking characteristic of corpus-luteum rupture is suddenness of the onset. The symptoms produced by rupture vary considerably with the amount of hemor- ige. Seldom is the bleeding severe enough to produce icture of shock. In order for the ovarian rupture to recognized clinically, sufficient hemorrhage must cur to cause irritation of the pelvic peritoneum. The iderness present in the lower part of the abdomen is st pronounced on the side on which rupture has taken ice. In the majority of the cases, the tenderness is most marked on the right side, owing to the comparative frequency with which rupture occurs in the right ovary.[14] In this series, 14 of the 19 patients had a rupture of the right ovary. Muscular spasm is rarely severe, and is frequently absent. Rebound tenderness can be elicited if there is sufficient free blood in the abdomen. Pain may be experienced in the shoulder if the blood extends up to the diaphragm and irritates the phrenic nerve. In contrast to the findings in acute peritonitis, peristaltic sounds are usually heard. A varying degree of nausea is present, but vomiting is usually absent. Only two of the 19 patients in this series experienced vomiting. A few of the patients experienced an urgency to defecate or urinate, and three of them had cramp-like pain on defecation.

A fulness may be palpable in the cul-de-sac on bimanual pelvic examination, but often the amount of free blood is insufficient to produce a mass. Adnexal tenderness is most pronounced on the side on which the rupture is present. The ovarian hematoma may sometimes be outlined as a soft, tender tumor.

The temperature is normal or only slightly elevated. There may be slight to moderate leucocytosis and anemia, depending upon the amount and duration of the hemorrhage.

While many of the aforementioned clinical findings might readily be associated with ectopic pregnancy, evidence of gestation in these cases of ruptured corpus luteum is strikingly absent.

Diagnosis.—An erroneous preoperative diagnosis, such as acute appendicitis, ruptured extrauterine pregnancy, or salpingitis, is made in the majority of cases of ovarian hemorrhage. A correct diagnosis can be established in an increased percentage of these cases if such an entity as corpus-luteum rupture is kept in mind in making a differential diagnosis of acute abdominal pain in any woman of child-bearing age. This is well borne out by a survey made by Hoyt and Meigs [14c] at the Massachusetts General Hospital, where 17 of 58 ovarian ruptures (follicular and corpus-luteum ruptures) were correctly diagnosed preoperatively by the house staff and surgical residents, who were on the lookout for such hemorrhage from the ovary. The sudden onset of symptoms of intraperitoneal hemorrhage, during the second half of the menstrual cycle in any woman of child-bearing age should lead one to suspect a rupture of the corpus luteum. To differentiate the condition from a ruptured

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6. (*a*) Israel.[3] (*b*) Weil.[5] (*c*) Payne, W. R.: Rupture of Corpus Luteum as a Cause of Acute Abdominal Symptom: Case Reports, Am. J. Obst. & Gynec. **25**: 150-151 (Jan.) 1933. (*d*) Stuckert, H.: Ovarian Hemorrhage, J. A. M. A. **94**: 1227-1229 (April 19) 1930.

7. Israel.[3] Weil.[5] Payne.[6c]

8. Christopher, F.: Hemoperitoneum from Traumatic Rupture of Corpus Luteum, J. A. M. A. **93**: 456 (Aug. 10) 1929.

9. Greenhill, J. P.: Ruptured Corpus Luteum Cyst and Unruptured Hematosalpinx in a Nulliparous Woman, Am. J. Obst. & Gynec. **19**: 423-424, 1930. Pratt, J. P.: Mild Symptoms from Rupture of Follicle Cyst of Corpus Luteum, ibid. **27**: 816-824 (June) 1934.

10. Henthorne, J. C.: Pathologic Defects of the Corpus Luteum of the Ovary, Mississippi Doctor **18**: 139-143 (Aug.) 1940.

11. King, G. C., and Hawes, C. H.: Ruptured Ovarian Cyst in Childhood: Report of a Case, New England J. Med. **215**: 576-577 (Sept. 24) 1936.

12. Foisie, P. S.: Hemorrhage from a Ruptured Corpus Luteum: Report of Case, New England J. Med. **227**: 45-46 (July 9) 1942.

13. Pedlow, E. B.: Massive Intraperitoneal Hemorrhage Caused by Rupture of Hemorrhagic Corpus Luteum, Ohio State M. J. **43**: 168-169 (Feb.) 1947.

14. (*a*) Morton.[1] (*b*) Weil.[5] (*c*) Hoyt, W. F., and Meigs, J. V.: Rupture of the Graffian Follicle and Corpus Luteum, Surg., Gynec. & Obst. **62**: 114-117 (Jan.) 1936.

extrauterine pregnancy may be difficult at times, especially if the patient's menstrual periods have been irregular.

Operative Procedure.—In many of the mild cases surgical operation is not required, for bleeding frequently stops spontaneously after a period of oozing. The severity and progression of the symptoms should be the guide in the decision for operative intervention. However, needless to say, the danger of watchful waiting lies in those cases with a mistaken diagnosis in which an accutely inflamed appendix or other acute surgical condition of the abdomen exists.

The treatment of the ovary depends upon the amount of pathological change present. As much as possible, the affected ovary should be conserved. The simplest procedure is to evacuate the hematoma and approximate the collapsed wall with atraumatic® absorbable surgical suture. Resection of the ovary, or even oophorectomy, may be necessary if the greater part of the ovary is involved by the hematoma or if bleeding cannot be controlled.

Since dual lesions may coexist,[15] the appendix should be examined routinely and extirpated whenever possible, even though a definite pathological condition exists in the ovary. An acutely inflamed appendix, coexisting with a ruptured corpus luteum, has been reported by O'G man [16] and by Hoyt and Meigs.[14c] Such a dual lesion also found in this series of cases.

SUMMARY AND CONCLUSIONS

Nineteen cases of ruptured corpus luteum occur at St. Joseph's Hospital in Milwaukee in the period f January, 1944, to June, 1950, are reviewed. A co preoperative diagnosis was made in one case. In cases the condition was diagnosed as acute appendi in three, as ectopic pregnancy; in two, as cystic ov and in one, as endometriosis.

The clinical manifestations, diagnosis, and surg aspect of ruptured corpus luteum are discussed.

Ruptured corpus luteum is not an uncommon co dition.

A diagnosis of ruptured corpus luteum should be e tertained in any woman of child-bearing age with lo abdominal pain occurring during the second half of t menstrual cycle.

5000 W. Chambers St.

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[15] Taniguchi, T., and Kilkenny, G. S.: Prophylactic Appendecto Gynecological Surgery, Am. J. Obst. & Gynec. 60: 1359-1362 (Dec.)

[16] O'Gorman, F.: Acute Appendicitis Associated with Intraperi Hemorrhage from Rupture of Corpus Luteum, Brit. M. J. 1: 148 (Ja 1942.

GENERAL PRACTITIONER'S ROLE IN MANAGEMENT OF PERSONALITY PROBLEMS OF ADOLESCENTS

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The general practitioner, who sees more adolescent patients than any other medical specialist, should accept he challenge which the problems of adolescence present. ecause of the continuity of contact with the child, and his parents and siblings, the general practitioner is in a favorable position to contribute both to the solution and prevention of emotional problems arising in this 13 to 18-year-old age group. This paper does not seek to offer a comprehensive psychological evaluation of adolescence but rather limits discussion to those problems which the general practitioner could manage within his limitations of time and training.

PERSONALITY PROBLEMS OF ADOLESCENTS

The beginning of adolescence [1] brings about very definite physical manifestations, but changes in personality occurring at this time are not so abrupt as is frequently thought. Personality and emotional disturbances evi during adolescence are usually a continuation or re vation of infantile and early childhood conflicts. At ti however, the stress of physiological and social dem may be more than some adolescents can handle, so th borderline adjusted child may have a turbulent ado cence.

I shall not discuss specifically such antisocial beha as alcoholism, narcotic addiction, thievery, "mugg sex crimes, use of "hot rod" cars, and the many major aberrations of behavior seen so often in ad cents. They are merely violent modes of expressio emotional needs or conflicts, or attempts at solutic these conflicts, and are basically combined social psychiatric problems. These problems are often bey the scope of the general practitioner, who should limi attention to the earlier evidences of conflict in the areas to be discussed.

Adolescent Turmoil.—What constitutes normal havior during adolescence? Unfortunately, there i specific answer. Young people arrive at adolescence varying degrees of self-esteem and self-approval, m concepts, and abilities to relate themselves to others to adjust to new situations. They run up against t basic challenges as result of physiological developm and social pressures: (1) need for "emancipation" f adult authority, (2) the sex drive, and (3) aggres drives to achieve and dominate. This occurs along the adolescent's need to be accepted and approved by agemates.

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[1] Adolescence may be divided into three phases: prepubescence, pubescence, and postpubescence. Pubescence may be described as that phase of development which starts with the first appearance of terminal hair in the pubic region and terminates when the pubes is fully covered with hair. Prepubescence is that stage in which the penis and testes begin their spurt of growth in the boy and the breasts in the girl up to the point when pubic hair is first apparent. Postpubescence is the phase after hair is well developed until full maturity. The penis and testes grow progressively during all these phases. In the girl the breasts and uterus continue to grow throughout these phases, with menstruation usually beginning during the phase of pubescence. Puberty is defined as the point when the individual boy or girl is capable of procreating and need not correspond to the day of the boy's first emission or the girl's menarche. The period of childhood prior to adolescence may be called preadolescence and that following it postadolescence or maturity.

These challenges are usually in conflict with the child's lier concepts of proper behavior and the culturally epted patterns of behavior set up by parents and soci- , so that the adolescent must constantly choose be- en modes of action which depend on conflicting hes, values, attitudes, feelings, and beliefs. The ex- me contradictions of attitude and behavior which aracterize even the normal adolescent are expressions these conflicts and their search for acceptable patterns conduct. The resolution of these conflicts is the very ence of personality development in the adolescent and in area in which the physician can be of great help.

Problems Associated with Physical Development.— though deviations in physical development rarely affect havior directly, they do influence behavior by develop- anxieties that color or distort the child's experiences.[2] is is particularly a problem in adolescence when the sire to grow is changed to a desire to grow sexually propriate at a time when there is such a marked varia- n in the physical status of children of the same age, due the wide age range of onset of normal adolescence.[3] is this wide age range of onset of normal sexual matura- n and the associated growth spurt which create the parent deficiencies in development noted in this age oup, which are frequently erroneously attributed to docrine dyscrasia.[4] The issue of being approved or sapproved by others assumes a critical importance, so at anything which tends to make the adolescent feel adequate or inferior (such as a deficiency in height or condary sex characteristics) leads to feelings of anxiety d is likely to be met promptly with some kind of defen- e reaction. However, even more often, the manifest ncern over physical development is merely a ration- ization and projection of a more basic emotional de- ivation.[5]

Often boys or girls who mature physically earlier than eir contemporaries also present personality problems. his is due largely to the fact that the restrictions imposed th by society and parents are based on the child's ronological age, while the demands of the early- aturing adolescent are based on his physiological status, ars of maturity, and appearance. When associated with tellectual retardation, early physical maturity fre- uently leads to serious social maladjustment.

Disturbed Parent-Adolescent Relationship.—It is too mple either to blame parents for every personality dis- rbance manifested by adolescents or to absolve them om all responsibility and blame the adolescent. It is ore important to analyze the family interrelationships nd contradictions which create the problem.

This is a time for rebellion. The adolescent strives to scape parental domination only to be able to conform to e even more domineering mores of his agemates; yet, t the same time, it is important for him to have a feeling f acceptance and being understood by his family. Con- ant reminders that a boy or girl is "different" or admoni- ons that he should be more popular, effective, or onforming aggravate and add to the problem. The dolescent must also work out his hostilities and over- ttachments to his parents.

Frequently the child's disturbed behavior and feelings are his adaptation to the parents' own emotional problems. Parents may seek in their child compensation for an unhappy marriage, solution to emotional conflicts, or a counterbalance to disappointments in a vocational career, while others even resent their children. However, it must be remembered that many more parental shortcomings emanate from anxiety and confusion than from ignorance or malice, so that the physician can accomplish a great deal by helping parents look to their own problems and create wholesome relationships with their children.

Both boys and girls are greatly influenced by the "emotional climate" in the home created by the parents' attitudes toward each other, toward them, and toward society. A mother who makes a boy feel he is repulsive to girls or who passively clings to him, denying him the emotional freedom to direct his attention to girls, may handicap or block his psychosexual development. Likewise, the mother and father who do not help their daughter clarify and accept a realistic role in life may hinder her maturity. Confusion and conflict over the feminine role today create a pressing problem of anxiety and uncertainty in adolescent girls.

The rivalry and jealousy among siblings and the child's position in the family constellation are important factors in the family situation which requre a great deal of understanding.[6] Hostility and feelings of guilt are frequent emotional reactions of adolescents to problems in this sphere.

Problems of Social and Sexual Adjustment.—To become effective members of society, boys and girls must accept responsibility for self-direction and establish wholesome relationships with their own contemporaries. Parents must help them to achieve this independence.

As adolescence begins, the youngster begins seriously to evaluate himself in comparison with friends and classmates, not only in respect to physical appearance, as previously discussed, but also in respect to his intellectual capacities, interests, attitudes, needs, and personality. If he finds himself wanting, he may project his difficulties, blame others, and show uncontrolled and undirected hostile behavior when thwarted; or he may withdraw from social contacts, tending to give up in his struggle with life, often with the development of somatic complaints. It is a real dilemma, and the physician must use caution before even encouraging a youngster toward greater social activity until underlying problems are clearly seen. Withdrawn, shy youngsters are not helped when told to "go ahead and have a good time." It is essential to understand and deal with the basic personality problems which inhibit expression of instinctive gregarious needs. A diagnosis of schizophrenia is made too often of these disturbed adolescents, but when present it should be recognized early.[7] It is equally important to understand and manage the hostile and aggressive youth. Disturbances in sexual behavior and attitudes in adolescents are invariably an expression of a more generalized personality problem. However, inconsistencies in our social standards also create confusion as to the person's sex role, very often resulting in intense feelings of guilt and attempts to resolve the conflict through a variety of personality reactions including compulsive behavior, submissiveness, hostility, or withdrawal. Most adolescents learn to control, sublimate, or express their sex drives in socially acceptable patterns of behavior, but some do get into difficulties.[8]

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Sex education is more than a knowledge of anatomic and physiological processes. It is an understanding of how to love and live with members of the same and opposite sex. To be effective, sex education must start
early childhood as questions arise and be part of
training in accepted cultural patterns of behavior
interpersonal relationships, and not left merely to a se
of lectures or movies during adolescence.[9]

Problems of Adjustment in School.—The phys
should do more than merely eliminate the physical
fects which may handicap the child. In cooperation
the school authorities, he should try to evaluate i
lectual and emotional factors which may be ca
failure. Failure in school is not always due to inf
intellectual endowment. In some cases it is due to
cific reading disabilities [10]; in others it is due to a
crepancy between the intellectual capacity and apti
of the adolescent and the demand of the high sc
curriculum or the ambitions of the parents. It must
be forgotten that in many cases failure in school is m
the expression of unsatisfied emotional needs, which
not be related directly to the school situation. Inal
to create wholesome relationships with agemates i
such factor. Handling these children by exerting
pressure adds more tension under which they must
However, a combination of school attendance laws
ure of many schools to adjust to the needs of the aca
ically poor student, as well as parental and social
sures for attendance in school has placed a cou
number of children under progressively increasing
during the elementary school years, so that at adoles
their anxiety and tension is at the breaking point.
dread the thought of another day at school. They
fest their anxiety in different ways, varying from ps
somatic symptoms to acts of delinquency. Only to
quently the adolescent thinks of school as the cause
unhappiness and wrongly feels that if he were to
school all his anxieties would end. He fails to reali
his problems may be much more profound and bas

GENERAL THERAPEUTIC CONSIDERATIONS

Unfortunately, many general practitioners and
tricians have avoided psychological treatment at all
paying too little attention to the psychotherapeutic
sibilities inherent in the general practice of medicin
pediatrics.[11] The physician should interview [12] the
ents and adolescent individually, giving them an o
tunity to express themselves freely after reassuring
all that his goal is to help and not merely to criticiz
should also communicate with the adolescent's sc
Once the practitioner has gathered all the informatio
must evaluate the sphere or spheres in which the ad
cent's problems lie and formulate a working hypot
of the psychodynamics and social pressures involve
could call on several other trained workers to help
with this formulation when necessary besides the s
guidance personnel—namely, the pediatric psychia
child psychologist, psychometrician, or psychiatric
worker of a family agency.

The general practitioner and pediatrician could
utilize their time in the management of those adoles
for whom reassurance and manipulation of the env
mental situation is adequate—whether this would in
modification of parental or sibling attitudes, the s

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tion, or social pressures. Treatment may be directed ur areas—namely, the adolescent, the parents, the ol, and group activities.

ie Adolescent.—It is important for the physician sees an adolescent patient, whether for an illness or school examination, to include in his examination iistory a survey of the adequacy of the adolescent's , nutrition, and general activity as well as his adjust- to school, home, and his peers and to initiate such ges as may be indicated. Particular attention should iid to the emotional status of all adolescents who ss more concern than is justified about their physical h, normality, and physical attractiveness.[13] The cian who understands and even anticipates the diffi- s likely to arise because of irregularities in growth exual maturation can help parents and youngsters igh this trying period. He must, however, always mber *that concern over physical development may ther a cause of anxiety or merely a projection of a basic emotional problem.* It is just as wrong, then, e hormones indiscriminately as it is to send a mother with the comment "stop worrying, he will outgrow r that the young person "is just going through a e." Hormone therapy and remedial surgery have a limited place in the treatment of adolescents, al- gh specific indications do exist, usually as adjuvants sychotherapy.[14]

any adolescent behavior problems can be interpreted rms of conflict between the youth's desires and direct idirect environmental demands made on him. The ician should attempt to find a solution to the con- which will satisfy the young patient's needs and h will still meet acceptable social standards. He ld make certain that environmental pressures are nable and within the child's capacity to meet them, ne should work toward satisfaction of fundamental ional needs. The physician cannot promise to nate all friction, but he can offer to help the adoles- meet his difficulties, resolve his conflicts, and under- l the need to control his primitive impulses and thus great deal to obviate many of the personality prob- of adolescence and psychosomatic disorders of early t life. This cannot be accomplished through lecturing y helping the adolescent and his parents to marshal acts and evaluate them realistically. Unfortunately, any adolescents, like their parents, emotional blocks biases develop which prevent a realistic evaluation ie situation. In these cases only a deeper analytical oach will be of any help to modify the adolescent's tional needs and blundering attempts to solve his licts.

'herever possible, treatment should be carried on e the child is at home. Too often the military or ding school is the adult answer to adolescent prob- . "They'll teach him discipline," is the cry. Fre- itly, however, all they achieve is further repression ostilities, which subsequently become expressed in r spheres. Discipline to be effective must be self- osed. It can only be inculcated if the child has a feel- of being loved and a sense of belonging.[15] Decision as to whether the child remains or is removed from home is dependent on the ability of parents to accept their responsibility in the psychotherapeutic manipulation of *the home situation while therapy is in progress.*

Parents.—In dealing with parents the busy practitioner must learn to differentiate between two general groups. First, there are those who are well adjusted but do not comprehend their own mistakes. These parents can learn, accept suggestions, and follow directions with good judgment. Often they are misguided and overanxious about their children. With them a lot can be accomplished in a little time if the general practitioner understands the problem and advises them properly, not only in regard to specific behavior but, more important, in regard to helping them change their feelings and attitudes.

The second group of parents is infinitely more difficult to deal with. They are victims of their own maladjustments, frequently influenced by strong guilt and conflict over hostile feelings toward the child, which must be resolved before anyone can help the parent-child relationship. Parents as well as the adolescents need the sympathetic understanding of the physician. It is futile for the physician merely to assume an authoritative, critical, or disciplinary role with either. At times one finds that the root of the problem is so profound in either the mother or father that the only hope lies in adequate psychotherapy for the parent. Usually, however, it is possible to accomplish a great deal by working with the adolescent and guiding the parents. The goals in treatment are directed not only toward helping the parents handle the adolescent, but also toward teaching the adolescent how to handle his parents with the minimum of conflicts and the maximum of satisfaction to both.

School.—The physician who treats adolescents must work in close cooperation with the school authorities, both from diagnostic and therapeutic viewpoints. Most high schools have designated personnel to be in charge of student counseling who welcome the opportunity of working in close cooperation with the family physician.

The physician's understanding of the adolescent's and his parents' emotional needs and limitations may be of great help to the school counselor in formulating an appropriate academic or vocational training program for the individual child. In turn, the counselor by knowing of the child's limitations and potentialities can do a great deal to help the physician to relieve the tensions and anxieties by adjustment of the child's academic program.

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Group Activities.—It is important for the general practitioner to help the adolescent and his family to find acceptable outlets for his energies through group activities. However, the question frequently arises as to how "to make" the adolescent join the community-sponsored or accepted projects, such as social clubs, scout movements, athletic teams, 4H clubs, or church groups, as opposed to the corner drug store, poolroom, dance halls, and cellar clubs. In joining a group, the adolescent identifies himself with this group, whether for constructive purposes or as an expression of revolt, and this is as much a symptom as an etiological factor in the behavior disorder. Before the adolescent can establish a wholesome group relationship, he must be able to relate himself to others as a person accepting his assets and liabilities. It is in this sphere that a physician could contribute most. In helping the disturbed adolescent to find a socially acceptable group to join, the physician and family should not try to force the adolescent into a pattern of behavior wholly unacceptable to him. They should try to take full advantage of the adolescent's aptitudes and interests and find a group in which he could find a place for himself, even if it is a compromise with the adult's concept of ideal activity, as long as it is in the right direction. The adolescent must also be taught to compromise.

Need for Referral to Psychiatrist.—In some cases psychotherapy must go beyond the point of environmental manipulation, encouragement, and guidance. It can only be achieved through a close interpersonal relationship of patient and psychotherapist in which the adolescent can live through his conflicts. This requires the specialized skills and techniques of the pediatric psychiatrist.

Adolescence is a promising period for psychotherapy. The teenager's personality, being dynamic and open to suggestion, is highly amenable to all external influences, including those of psychotherapy. The personality is still flexible in adolescence. If at this stage the adolescent's insight and awareness is widened, a solidifying of the personality into permanent patterns of maladjustment may be prevented. The approach varies with the individual case and the individual psychiatrist. But in all cases it is largely dependent for its results on a quick, strong, and successful transference. The therapist, by virtue of his skill and experience, quickly ascertains the nature and extent of the adolescent's affective distortions and emotional disturbance. He attempts to correct these by reweaving the patient's emotional life, retraining his reactions, reintegrating him to life, and helping him to find enduring interests, healthy sublimations, and strong compensations. The adolescent is also taught to recognize and accept the fact that frustration and a certain amount of accepted and tolerated emotional repression is a necessary part of civilized society. The adolescent must find a working knowledge of the nature of his emotions which helps him to comprehend the reaction patterns of his life. He must understand the more usual dynamic factors and psychological mechanisms influencing his reactions, and he must be taught how to deal with these factors in accordance with wholesome goals and purposes in life.

SUMMARY

The ever-increasing problems of adolescence ca
the cooperation and collaboration of all those inv
in the management of this age group, including the f
physician. The general practitioner must go beyo
adolescent's physical health and accept responsibili
helping to resolve the adolescent's emotional need
conflicts. The problems discussed are those asso
with normal adolescent conflicts, as well as the pro
associated with inadequate physical maturation an
occupation with physical health and sexual mal
ment, disturbances of intrafamily relationships, a
ficulties in school. Young people arrive at adole
varying in self-esteem, self-approval, feelings of
petence, and in the ability to relate themselves to
and to adjust to new situations. At this time th
confronted with three basic challenges, which are e
pation from parental authority, the sex drive, a
aggressive drives to achieve and dominate. The
of personality development in the adolescent is th
lution of the conflicts created by these new driv
emotional needs of maturity superimposed on th
personality pattern of the youngster in the pres
the frequently conflicting mores of parents an
adults with those of his agemates. Frequently, th
tional needs of the adolescent are not satisfied
pattern of behavior adopted as the solution for
flicts is not socially acceptable and leads to the
ances of behavior noted in teenagers. The physici
remember that the expressed concern is often r
rationalization and projection of a more bas
tional deprivation.

In the section on general therapeutic conside
an approach to the problems of the adolescent
lined, emphasizing the areas to which the p
should direct his attention—the adolescent, the
the school, and the adolescent's social grou
adolescent behavior problems can be interpreted
of conflict between the adolescent's desires and
vironmental demands made on him. The gener
titioner and the pediatrician could best utilize th
in the management of those adolescents in whom
ance and manipulation of the environmental sit
adequate, which would include modification of
or sibling attitudes, academic situations, and soc
sures. In some cases psychotherapy must go bey
point, so that the general practitioner must evalua
which he can treat himself in close cooperation
family and school guidance personnel and those
he must refer for specialized psychiatric guidanc

62 Waller Ave.

Diarrhea from Antibiotics.—Prolonged diarrhea may f
ministration of chloramphenicol, aureomycin, terran
penicillin-sulfonamide combinations. The diarrhea cl
sembles and is apparently identical with the diarrhea of
syndrome. It is probably due to a deficiency state sec
the destruction of the normal intestinal flora. The dia
sponds readily to parenterally administered liver, in co
with ingestion of B vitamins.—Reuben R. Merliss an
Hoffman, Steatorrhea Following the Use of Antibio
England Journal of Medicine, Aug. 30, 1951.

OCCULT CARCINOMA OF THE BREAST

William T. Fitts Jr., M.D.
and
Robert C. Horn Jr., M.D., Philadelphia

nsiderable emphasis has been placed on early osis as a major weapon in the fight against breast r, and, certainly, if breast cancer is detected early, vorable outcome may be expected. Follow-up s show that radical mastectomy for cancer perd prior to axillary lymph node involvement results ree times as many five-year survivals as when tion is delayed until the nodes have been invaded. fortunately, it is not always possible to detect t cancer early. The usual method of detection is the physicial examination. Although interesting imental work is being done in diagnosis by active phosphorus and roentgen rays, laboratory ods of detecting breast cancer preoperatively are et practical, and therefore it is necessary to depend st entirely on clinical examination.

the management of breast lesions, we have used concept of a "dominant lump" as introduced by gensen and Stout.[1] The term "dominant lump" is oyed by those authors to designate a circumscribed of breast tissue different in consistency from the ounding breast tissue. The early detection and imiate investigation of these circumscribed areas of st tissue is the chief hope of curing breast cancer r present limitations, and the only accurate method iagnosing a "dominant lump" is by excision for s and microscopic examination. In a series of 166 ninant lumps" removed surgically, one of us (W. T. compared the preoperative diagnosis with the final ologic diagnosis based on microscopic examination found that only 75% of our preoperative diagnoses correct.[2] It has been repeatedly demonstrated that e waits for the classical signs of carcinoma (nipple ction, skin attachment, and fascial attachment) to ar before a "dominant lump" is removed and ined, the chance of cure may be lost.

the clinical demonstration of a mass in the breast e most trustworthy indication of cancer, it is dising to learn that some breast cancers first manifest selves by other, and often more advanced, signs. son [3] recently reported three patients with carcia of the breast, each of whom had a palpable ary metastasis before the primary breast lesion d be felt. Cogswell,[4] prompted by Jackson's contion, reported a similar case, and several physicians discussed Cogswell's paper mentioned having seen ast one similar patient.

he concept of an occult carcinoma is not new, hav- been discussed by Willis [5] in "The Spread of nors in the Human Body," in a section on "Latent cinoma of the Breast." He refers to several reported [6] in which the first sign of disease was axillary or distant metastasis.

t the Hospital of the University of Pennsylvania have recently seen several cases similar to Jackson's Cogswell's, and have been stimulated by their reports to make a study of our experiences. We have reviewed all breast cancers examined in the Laboratory of Surgical Pathology in the last eight years from cases in which a mass was not palpated before operation.

So much reliance is placed on the discovery of a mass as the diagnostic criterion of breast cancer, that we believe it is well to give wider recognition to the occult carcinomas of the breast and their first symptoms and signs.

ANALYSIS OF CASES

During the last five years, 15 patients were operated on at the Hospital of the University of Pennsylvania for carcinoma of the breast that had manifested itself before a mass could be palpated. In a 16th case, breast carcinoma that had metastasized to the abdomen was discovered only at autopsy. The signs that led to the diagnosis of cancer are listed in the table. The recognition of a small dominant lump is a difficult and often an arbitrary diagnosis. What some examiners call a "lump," others may consider a normal variation. An experienced examiner may find a small "lump" in a breast that most physicians would pass as normal. It is entirely possible that some of the breast cancers in these patients might have been felt before operation. Suffice

Occult Carcinoma of the Breast; Presenting Sign in 15 Cases

Discharge from the nipple	4
Dermatitis of nipple	4
Axillary metastasis	4
Edema of skin	1
Retraction of skin	1
Distant metastasis	2
(a) Orbital	1
(b) Abdominal	1

From the Department of Surgery, School of Medicine, University of Pennsylvania, and the Hospital of the University of Pennsylvania (Dr. Fitts); the Laboratory of Surgical Pathology, and the Penn Mutual Life Insurance Company Foundation for the Study of Neoplastic Disease, Hospital of the University of Pennsylvania (Dr. Horn).

[1] Stout, A. P.: The Technique of Diagnosis of Breast Carcinoma, the Choice of Treatment, and the Criteria of Inoperability; Homer G. Phillips Hospital, Tumor Staff Meeting, J. Nat. M. A. **39**: 94, 1947.

[2] Fitts, W. T., Jr., and Donald, J. G.: The Diagnosis of Lesions of the Breast, Surgery **25**: 424. 1949.

[3] Jackson, A. S.: Carcinoma of the Breast in the Absence of Clinical Breast Findings, Ann. Surg. **127**: 177, 1948.

[4] Cogswell, H. D.: Hidden Carcinoma of the Breast, Arch. Surg. **58**: 780 (June) 1949.

[5] Willis, R. A.: The Spread of Tumors in the *Human Body*, London, J. & A. Churchill, Ltd., 1934, p. 426.

[6] *Halsted, W. S.: The Results of Radical Operations for the Cure of* Carcinoma of the Breast, Ann. Surg. **46**: 1, 1907. Cameron, H. C: Some Clinical Facts Regarding Mammary Cancer. Brit. M. J [illegible] Penrose, A.. The Secondary Manifestations of Malignan[illegible] **76**: 312, 1922. Shore, B. R.: An Obscure Case of Breast Carcinoma [illegible] J. Cancer **15**: 221, 1931. Gins[illegible], S.: Pain in [illegible] Its Clinical Significance with Special Reference [illegible] J. M. Sc. **171**: 520, 1926. Liek, E. [illegible] erstes Zeichen eines [illegible]krebses [illegible] Derischanoff, S.: Die Kleincarcinome [illegible] **261**: 384, 1926. Patey, D. H. [illegible] on [illegible] *Distribution of Secondary Dep*[illegible] Breast, Brit. J. Surg. **15**: [illegible] Konferenz [illegible] logischen Anatomie, [illegible] Blakiston Company, 1929, p. [illegible]

it to say that physicians experienced in the examination of the breast were unable to detect a mass in these instances, even on repeated and careful examinations.

REPORT OF CASES

CASE 1.—A. B., a 51-yr.-old white housewife, had noticed a serous discharge from the right nipple for seven months before her admission to the Hospital of the University of Pennsylvania on April 25, 1947. She stated that occasionally the discharge had been "rust-colored" but never bloody. On examination serum was expressed from the right nipple but no breast masses were felt. A right simple mastectomy was performed on April 26 by Dr. F. L. Payne. By tracing a dilated duct in the center of the nipple, the pathologist exposed a hard, uncircumscribed lesion, 4.0 cm. beneath the nipple, which grossly resembled carcinoma and which proved on microscopic examination to be an intraductal carcinoma with minimal stromal invasion. Removal of the pectoral muscles and axillary contents was performed on April 30. Several axillary nodes contained metastases. In January, 1949, the patient noted a mass in the opposite breast. An excision biopsy on May 31 revealed carcinoma on quick-frozen section, and a left radical mastectomy was carried out. Microscopic study showed that the lesion from the left breast was a highly anaplastic carcinoma with invasion of adipose tissue and involvement of eight out of nine axillary nodes. The patient died March 30, 1950, with generalized metastases.

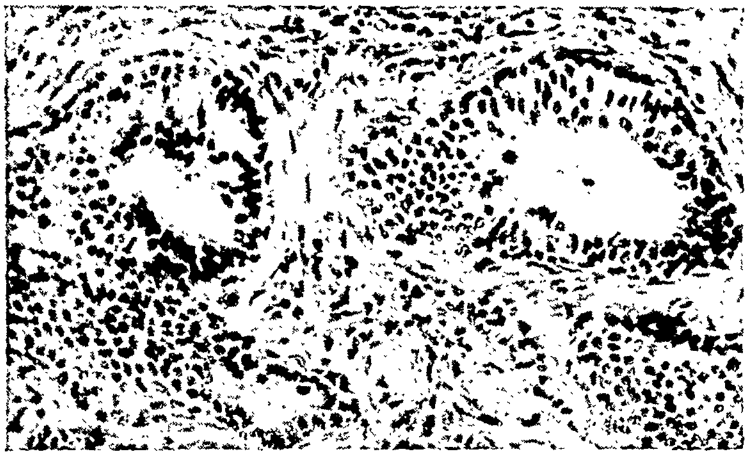

Fig. 1 (Case 4).—Atypical hyperplasia in mammary ducts. Hematoxylin and eosin; × 207.

CASE 2.—L. W., a 62-yr.-old housewife, was admitted to the hospital on Nov. 3, 1949, because of a muddy-red discharge from the left nipple first noted four weeks previously. Bloody fluid could be expressed from the nipple by pressure over the lower outer quadrant of the breast. No masses could be felt. Operation was performed the day after admission by Dr. H. P. Royster. A wedge-shaped segment of breast was excised, centering on a blood-filled duct located at the left lower quadrant. Gross and frozen-section examinations were suggestive of carcinoma but were not conclusive. The paraffin sections disclosed a carcinoma that appeared to be entirely intraductal. Radical mastectomy was performed on Nov. 7. Lateral to the biopsy wound was a nodule 2.0 cm. in diameter. Numerous ducts in the area of this nodule contained carcinoma cells. Thirty axillary lymph nodes were examined and were free of cancer.

CASE 3.—R. S., a 50-yr.-old white housewife, entered the hospital on June 9, 1950, because of a discharge from the left nipple of three years' duration. The discharge had been milky until several weeks prior to admission, when blood became evident in the fluid. No mass could be felt in the breast, but a discharge could be expressed from the nipple by pressure over several segments of the breast. A simple mastectomy was performed by Dr. F. L. Payne on June 10. No tumor mass could be identified grossly but microscopic examination revealed an intraductal carcinoma involving the ducts just beneath ple. Resection of the pectoral muscles and axillary con performed on June 16. None of 16 axillary nodes cancer.

CASE 4.—D. A., a 57-yr.-old Negro housewife, was to the hospital on Oct. 24, 1945, because of a bloody from the right nipple of six weeks' duration. Pressure ately caudad to the areola produced blood at the nipple masses could be felt in the breast. On Oct. 25 a wedge mary tissue was excised centering on the involved duct. Pathological examination disclosed a number of and dilated ducts, in some of which the epithelial unusually large and hyperplastic, occasionally forming papillomata. Although on subsequent examination papillomas were considered atypical, there was no cancer (Fig. 1). The changes were not striking, and it questionable whether they accounted for the bleeding.

Six months after operation the patient noted a mass scar but did not report to the follow-up clinic until after operation. At that time, examination disclosed a lateral to the scar, which was firm and lobulated and had retracted the skin. Excision biopsy performed 1946, by one of us (W. T. F.) disclosed a firm mass diameter, arising from a cyst wall. Microscopically was composed of intraductal papillary growths of cells cytology was definitely that of cancer and which far as the nipple. A radical mastectomy was performed of the carcinoma was intraductal. One of 29 axillary nodes contained metastatic carcinoma.

It is impossible to say definitely whether the lesion duced the nipple discharge, and that we believe was the first operation, was a cancer or was still a benign, precancerous, hyperplasia. The appearance of a mass six months after the first operation makes it seem the cancer was already present at the time of the first

Comment.—It is our opinion, based on a tailed study of nipple discharge,[7] that discharge is not normally associated with lactation investigated surgically, even though no breast be palpated. We believe that, usually, the or ducts can be identified preoperatively and excising a pie-shaped segment of breast with as its axis and the periphery of the breast as the lesion can be removed. If gross and examinations prove the lesion to be benign, the resection is usually sufficient.

Whether the discharge is bloody or nonbloody not alter the type of treatment. The discharge first case reported above was serous, despite been produced by a malignant lesion. considered by many authorities as a premalignant is often accompanied by a serous discharge bloody discharge is the more common symptom.

In Cases 5, 6, 7, and 8 the presenting sign was titis of the nipple.

CASE 5.—W. U., a 47-yr.-old white housewife, was the department of radiology in December, 1946, "eczema of the right nipple." In addition to the skin the patient had noted a serosanguineous discharge nipple for the preceding eight weeks. No masses could in either breast. Dr. E. P. Pendergrass made a clinical of Paget's disease of the nipple and this was biopsy. On Dec. 24 a radical mastectomy was Dr. H. A. Zintel. No tumor mass was noted on gross examination of the breast. Directly beneath the nipple were greatly dilated, and a thick, greenish exudate expressed from them. Microscopic examination erately extensive intraductal carcinoma without

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[7] Fitts, W. T., Jr.; Maxwell, J., and Horn, R. C., Jr.: The Significance of Nipple Discharge, unpublished data.

a. None of the 13 lymph nodes that were removed from xilla contained carcinoma.

se 6.—L. S., a 53-yr.-old housewife, was seen in the sur- outpatient department in February, 1949, because of an matoid" reaction about the right nipple. Eight weeks pre- ly she had noted a bloody discharge, which was soon fol- by redness and scaling of the nipple. Examination of the t revealed no abnormalities except the scaling eczematoid ss eroding the nipple. No secretion could be expressed from ipple. A biopsy of the nipple revealed the malignant changes get's disease. A radical mastectomy was performed on h 2. On microscopic examination an extensive intraductal oma was demonstrated, with associated Paget's disease e nipple, but no invasion was noted except in the nipple Carcinoma was not detected in any of the 16 axillary h nodes removed at operation.

se 7.—M. T., a 51-yr.-old white housewife, was admitted e hospital on April 29, 1949, because of a small scaling on the right nipple, which she had first noticed almost r before. The lesion was on the upper margin of the nipple was about 1.0 cm. in diameter. No masses were palpated o discharge could be expressed from the nipple. On April e nipple was excised by Dr. F. L. Payne. Microscopic ex- ation disclosed Paget's cells in the epithelium of the nip- nd in the epithelium of an adjacent duct. The diagnosis get's disease of the nipple was made and a radical mast- y performed on May 3. No breast tumor was noted on examination. Malignant changes were observed in two e ducts adjacent to the nipple. None of the removed axil- lymph nodes contained carcinoma. A recent follow-up ex- ation revealed no evidence of recurrence or metastasis.

se 8.—G. C., a 44-yr.-old white housewife, was admitted e hospital on Oct. 30, 1949, because of itching and red- of the left nipple. Eight months before admission she had ed peeling and itching of the skin of the left nipple. This followed by a serous discharge and crusting of the nipple. e four months preceding her admission to the hospital, her le became inverted and reddened. On examination, no es could be felt in either breast. A biopsy of the nipple, rmed after admission to the surgical outpatient depart- , was interpreted as showing Paget's disease. After the nt was admitted to the hospital, some observers noted an ular mass immediately below and medial to the nipple which not fixed to the skin. Radical mastectomy was performed ct. 31 by Dr. Michael Newton. The mass proved to be and irregular, and microscopically it was made up of ds of anaplastic tumor cells freely invading the surround- reast tissue. Twenty-seven of the 40 axillary nodes removed ained carcinoma cells.

omment.—It is our belief that Paget's disease of the le results from the extension of intraductal carci- a distally into the nipple and that it should be ted by radical mastectomy. When the pathology of et's disease is considered, it is not surprising that reast mass often cannot be palpated. Case 8 is espe- ly interesting because over half of the axillary lymph les removed at radical mastectomy were involved by cinoma in spite of the fact that no breast mass could felt. This case illustrates the necessity of doing a ical mastectomy rather than a mere resection of the ple or a simple mastectomy for Paget's disease of nipple.

n Cases 9, 10, 11, and 12 the presenting sign was me- asis to the axillary lymph nodes.

ASE 9.—I. W., a 35-yr.-old white housewife, entered the pital on April 20, 1947, because of a lump in the left axilla ed two weeks before admission. For about one year pre- asly, aching had occurred intermittently in the left axilla and iated to the left breast. Examination revealed no masses in the breast, but a mass was felt in the left axilla that was approximately 2.5 cm. in diameter, firm but freely movable. On April 21 Dr. F. L. Payne excised this mass, which proved to be a friable, hemorrhagic lymph node. Microscopic examination disclosed a mucoid type of carcinoma within the node. The morphology of the carcinoma was considered consistent with an origin in the breast, although not necessarily diagnostic. Studies to determine the origin of the tumor included roentgen examinations of the chest and the entire gastrointestinal tract, but these uncovered no abnormalities. Examination of the breasts by several observers disclosed no masses. On April 26 a left radical mastectomy was performed. In the left lower quadrant of the breast, buried deeply in the stroma, was an uncircumscribed, hard, 1.0-cm. mass, which on histological examination proved to be a characteristic mucoid carcinoma. It is striking that the only axillary lymph node involved with cancer was the one removed for biopsy, the 27 removed at radical mastectomy being free of malignant cells. A recent follow-up examination disclosed no evidence of recurrence or metastasis.

CASE 10.—G. S., a 46-yr.-old housewife, entered the hospital on Aug. 18, 1948, because of a "lump in the left armpit," noted two months previously. The axillary mass was firm but freely movable. Several examiners were unable to locate a definite mass within the breast, although the upper outer quadrant was diffusely thickened. The day after admission the axillary node was excised by Dr. J. E. Rhoads and a biopsy taken of the suspected area of the breast. The area of breast removed measured 2 by 1 by 0.4 cm. Gross and microscopic studies revealed dilated ducts filled with coagulum and surrounding round-cell infiltration. No malignant cells were discovered. The pathologist made a diagnosis of chronic cystic mastitis.

The axillary node measured 4 by 3 by 1.0 cm. and on microscopic examination was noted to be filled with cords of anaplastic tumor cells, occasionally forming tubules.

The following studies, made because a primary lesion could not be identified in the breast, did not disclose significant abnormality: roentgen examination of the gastrointestinal tract and chest; intravenous urogram; cholecystogram; and proctosigmoidoscopy. Believing that the most likely site of the primary lesion was the breast, Dr. Rhoads removed the left breast and axillary contents on Aug. 26. Gross examination disclosed a firm, fixed nodule, 1.5 cm. in diameter, deep in the breast parenchyma on the lateral side of the nipple. It lay well below and medial to the previous breast biopsy site. On microscopic study this mass proved to be the primary tumor. None of nine axillary lymph nodes removed at radical mastectomy contained tumor cells.

The patient reentered the hospital on Jan. 3, 1949, because, at the follow-up examination, dimpling of the skin of the right breast was discovered just lateral to the areola. No definite breast mass was evident. Excision biopsy of the area, performed the day after admission, revealed carcinoma, and a radical mastectomy was performed. No axillary metastases were discovered on microscopic examination. This carcinoma differed cytologically from the carcinoma of the left breast in that it appeared better differentiated. The fact that the tumor of the right breast was small and had not metastasized to the axillary nodes would suggest that the tumor of the right breast was an independent primary carcinoma. Follow-up examination in September, 1950, revealed no evidence of recurrence.

CASE 11.—T. W., a 63-yr.-old Negro housewife, entered the hospital on Aug. 29, 1950, because of a lump in the left axilla first noticed a month and a half previously. The patient knew of no abnormalities of the left breast, and no masses could be felt by any of several observers. Roentgen examinations of the chest and skeleton were negative. The lymph node was removed by Dr. John Thomas on Aug. 30, and examination by quick-frozen section revealed carcinoma. Because of the probability that the lymph node was invaded by metastatic carcinoma from the left breast, a left radical mastectomy was immediately performed. Careful sectioning of the breast revealed a tumor 1.0 cm. in diameter just beneath and to the right of the areola. Microscopic examination confirmed the diagnosis of carcinoma.

It is interesting that, among the 20 axillary lymph nodes removed and examined microscopically, carcinoma was found only in the one that brought the patient to the hospital.

The above three cases support the conclusion of Jackson[3] and Cogswell[4] that, in the female, metastatic carcinoma of the axillary lymph nodes in which the primary site cannot be discovered by physical examination and laboratory studies probably arises from a hidden mammary carcinoma and that radical mastectomy is justified. Under these circumstances, however, carcinoma of the breast is not always disclosed by radical mastectomy, as is illustrated by the following case.

CASE 12.—A. R., a 52-yr.-old white practical nurse, entered the hospital on Nov. 19, 1948, because of a mass in the right axilla, which she had noted five weeks previously. Over the fourth rib in the axilla lay a 5.0 cm. by 3.0 cm. round, discrete mass that was freely movable. None of the several examiners could find any breast masses.

The axillary mass was removed on Nov. 20 and microscopic examination disclosed a lymph node almost completely replaced by cellular tumor tissue thought to represent undifferentiated carcinoma. The following studies were performed in an attempt to identify the primary lesion: roentgen examination of the gastrointestinal tract with barium sulfate; intravenous urogram; roentgen examinations of the chest and skeletal system, and cholecystogram. No significant abnormalities were revealed. After these studies had failed to disclose a primary lesion, a right radical mastectomy was performed on the strength of a tentative diagnosis of carcinoma of the breast. A thorough examination of the breast failed to reveal carcinoma, and examination of the axillary nodes excised at this operation was also negative. A letter from her physician in December, 1949, stated that the primary tumor had not become apparent, and our last communication from the patient, on May 31, 1950, stated that her general condition had not changed.

In Case 13 the presenting sign was edema of the skin.

CASE 13.—J. H., a 63-yr.-old white business woman, entered the hospital on Sept. 11, 1949, because of edema of the skin f the right breast. A left radical mastectomy had been perrmed by Dr. I. S. Ravdin two years previously for a carinoma 8.0 cm. in diameter in the upper, inner quadrant of the left breast. No axillary metastases had been discovered. The patient had been examined at regular intervals of three months and no abnormalities were noted until June, 1949, three months before admission, when it was discovered that the entire right breast seemed denser and heavier than normal. She was then examined at more frequent intervals; the thickening increased and, just before her readmission, edema of the upper outer quadrant appeared. None of several observers was able to feel a mass in the breast.

Dr. Ravdin performed a simple mastectomy on Sept. 12. Gross examination of the removed breast revealed a 2.5 cm. hard nodule deep within the breast tissue caudad to the nipple. The nodule was not attached to skin or to fascia, but was infiltrating the surrounding breast tissue. Microscopic examination confirmed the diagnosis of carcinoma. We regard this as a metastasis from the cancer of the left breast. It is interesting that many of the lymphatics contained small tumor emboli. Probably the blockage of lymphatics by cancer first caused the increased density and thickening of the breast, leading later to edema of the skin.

Comment.—Edema of the skin is usually a late sign of carcinoma of the breast and is usually associated with a palpable mass. Carcinoma that has a tendency to invade lymphatics early may produce lymphatic obstruction of such extent that edema appears before the tumor can be palpated.

In Case 14 the presenting sign was retraction of the skin.

CASE 14.—I. B., a 50-yr.-old white housewife, enter hospital on Dec. 12, 1949, because of an area of skin retr in the right breast that had been discovered four weeks at a routine examination in the cancer detection clinic o hospital. The suspicious area was just medial to the areo was not associated with a palpable mass. The retracti not marked, and the patient was seen in consultation b I. S. Ravdin, *who could not feel a mass but* considered th retraction was suggestive of carcinoma; he performed a cision biopsy of the area on Dec. 13. The quick-frozen se diagnosis was chronic cystic mastitis, but examination o paraffin sections revealed an intraductal carcinoma with t cells invading the surrounding stroma. Accordingly, a ra mastectomy was performed on Dec. 30. The pathologist de strated *numerous intraductal* papillomas showing atypical ch but no evidence of carcinoma in either the breast tissue rem at radical mastectomy or in the 41 axillary lymph n sectioned.

Comment.—Most intraductal carcinomas first m fest themselves by a palpable mass, nipple discharg Paget's disease of the nipple. This lesion, located to the nipple and immediately beneath the skin, duced retraction of the overlying skin as its initial cal manifestation.

In Cases 15 and 16 the presenting sign was di *metastasis.*

CASE 15.—*Orbital Metastasis.*—R. D., a 56-yr.-old housewife, entered the hospital on the ophthalmological s of Dr. Francis Adler because of diplopia. Physical exami revealed a small, hard mass in the right supraclavicula but no evidence of a primary lesion in the breast. Th breast was noted to be larger than the left but the patient that she had observed this for many years. Ophthalmo *examination revealed a mass above and temporal* to th eye that was pushing the eye downward and inward. Dr Zintel excised the supraclavicular mass on Oct. 16, 1947 and microscopic examination disclosed a lymph node replaced by undifferentiated malignant cells. Although the tumor was thought to be a reticulum cell sarcoma, on study the diagnosis of carcinoma was made. The pati presented in tumor conference; *none of the several* ex could feel a definite mass in either breast, but some out a suggestive area of skin retraction in the upper oute rant of the right breast. Excision biopsy of this area, f by simple mastectomy, was performed by Dr. Zintel, wh that no definitely outlined mass could be demonstrated a tion. The biopsy specimen measured 4 by 4 by 4.0 c *tissue was essentially fibrous and fatty, but in the white* tive tissue representing breast stroma, a moderate nur tiny brownish cysts were noted. A considerable portion tissue had an extremely hard texture. Microscopically m epithelial cells were noted, interspersed in a great ove of fibrous connective tissue. The lesion was diagnosed cinoma of the breast.

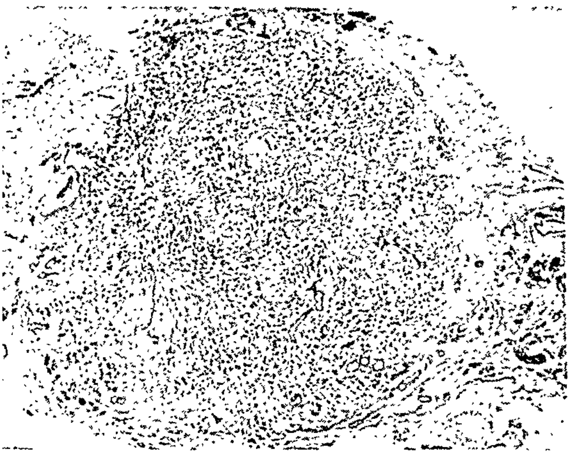
CASE 16.—*Abdominal Metastasis.*—E. J., a 50-yr.-ol housewife, entered the hospital on June 15, 1947, on the of Dr. P. O. Klingensmith. Examination before admissi shown fixed bilateral adnexal masses *thought to* be ca of the ovaries. Sixteen years previously a left radical mast had been performed in another hospital for carcinon axillary metastases were demonstrated pathologically. admission to the Hospital of the University of Pennsylv masses could be felt in the right breast or in either axilla. tion was performed on June 17 by Dr. Klingensmith a H. A. Zintel. The peritoneal cavity *contained* bloody flui the small intestine and its mesentery were matted wit white plaques grossly resembling carcinoma. Both ovari enlarged, forming masses about 7.0 cm. in diameter whi hard and nodular. Palpation revealed involvement of t terior wall of the *stomach* and the transverse colon. Th operative diagnosis was carcinoma of the stomach with tases to the ovaries. Biopsies *were taken* from the me of the transverse colon, the right ovarian mass and th n, and the procedure terminated. *Microscopic examina*-:vealed infiltration by cords or masses of fairly small and m cells separated from one another by dense, acellular of hyaline stroma. Pleomorphism was not striking and itotic figures were seen. The morphology was consistent arcinoid as well as with carcinoma: special stains did not ;e argentaffin granules. The tumor was considered meta-although the primary site remained undiscovered.

lowing discharge from the hospital the patient was given ive *roentgen-ray therapy* and did remarkably well until er, 1949, when she developed partial intestinal obstruc-nd was readmitted to the hospital. Exploratory operation erformed on Dec. 19, 1949, in the hope of relieving the ction but the tumor growth was so extensive that the site struction could not be determined. She died on Dec. 25. time during her illness was a mass felt in the right breast : repeated physical examinations. At post-mortem exami-, however, Dr. H. T. Enterline discovered a 1.0 cm. nodule upper outer quadrant of the breast. Microscopic exami-of this mass, as well as of right axillary and mediastinal nodes, revealed a carcinoma morphologically identical he tumor in the ovaries and peritoneum. Although the neum was the site of extensive carcinomatosis, abdominal ement was limited to the peritoneum, mesentery, and s. There were no pulmonary metastases.

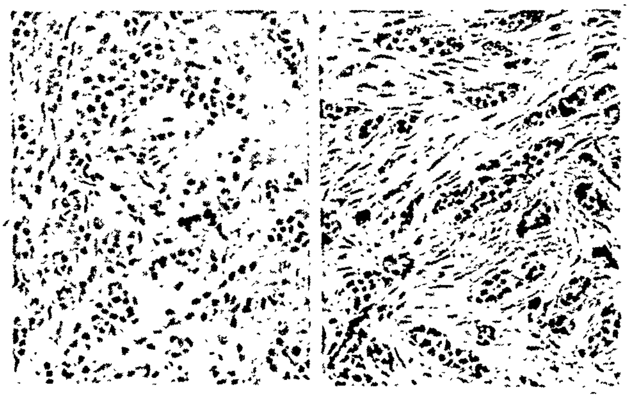
the light of the morphologic identity of the abdominal ight mammary lesions, the involvement of right axillary nodes and a morphologic picture quite consistent with nary carcinoma (*Figs.* 2 and 3), *we believe this case to* sent an instance of latent breast carcinoma with wide-d metastasis. The possibility must be considered that all : neoplastic lesions present at autopsy were secondary to ncer of the left breast, although the 18-yr. interval between adical mastectomy and death makes it seem more likely he carcinoma in the right breast was a new primary tumor.

COMMENT

f these 16 patients with occult mammary carcinoma, fall into two well-recognized groups, the presence aget's disease of the nipple leading to the diagnosis ie group and the symptom of nipple discharge in other. We believe this is noteworthy because Paget's se of the nipple is not regarded as a manifestation ntraductal mammary carcinoma by all observers, there are those who interpret nipple discharge as ite evidence of a benign lesion. Although three of e eight patients had axillary lymph-node metastases, breast carcinomas associated with these two pre-ing signs may still be in an early stage of their lution. That skin retraction may also be an early sign of mammary carcinoma is illustrated by Case 13. In three cases the breast carcinoma first became manifest clinically by axillary lymph-node metastases, in itself a sign of advancement of the disease. It is of interest that in each of these three cases the lymph node initially removed proved to be the only one in which metastatic carcinoma was found. In the remaining three cases the diagnosis of breast carcinoma could not be established until signs of hopelessly advanced disease were present, skin edema in one instance and distant metastasis in two.



. 2 (Case 15).—Cross-section of the whole mammary carcinoma, was not detected during life despite widespread abdominal metas-Hematoxylin and eosin; × 11.



A *B*

Fig. 3.—Photomicrographs of *A*, the mammary tumor, and *B*, a peritoneal metastasis. Hematoxylin and eosin; × 231.

Four of these reported cases had bilateral mammary cancer. In two instances (Cases 13 and 16) the occult carcinoma may well have been a metastasis from a previously treated carcinoma of the opposite breast. Two other patients (Cases 1 and 10) with occult carcinoma of the breast subsequently developed cancer in the remaining breast and in one of these (Case 10) the second cancer manifested itself initially by skin retraction in the absence of a palpable mass.

SUMMARY

The first sign of carcinoma of the breast is not always a palpable mass. Physicians should be on the alert for discharge from the nipple, erosion of the nipple, retraction or edema of the skin over the breast and enlargement of axillary nodes, any one of which signs may indicate mammary carcinoma even in the absence of a palpable mass in the breast. We have reported 15 patients with occult carcinoma of the breast in whom operation was performed before a breast mass could be palpated, the diagnosis having been suspected because of one or more of these signs. A 16th case is included in which the breast was identified as the source of widespread abdominal metastasis only at autopsy.

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Causes of Death in Children.—The so-called degenerative conditions—cardiovascular disease and cancer—now cause more deaths among children of school age in the United States than all the infectious and parasitic diseases combined. The array of infectious diseases frequently referred to as "childhood diseases" has in the past been associated with the young age group in various ways. . . . The infectious diseases are no longer more frequent than other diseases as a cause of death among school-age children.—Harold A. Kahn, M.D., Changing Causes of Death in Childhood, *Public Health Reports*, Sept. 28, 1951.

GASTROINTESTINAL HEMORRHAGE DUE TO NEUROFIBROMATOSIS

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and
Charley F. Gutch, M.D., Lincoln, Neb.

Gastrointestinal hemorrhage, both acute and chronic, may result from involvement of the bowel in a generalized process of neurofibromatosis, also known as von Recklinghausen's disease. In a classical case of this disease a diagnosis is not difficult to make. In such cases, intestinal hemorrhage of obscure origin should be easy to evaluate. Often, however, neurofibromatosis occurs as a subclinical disease and the diagnosis may be readily overlooked. The patient may have no more than a few pigmented areas and/or a few subcutaneous nodules. However, it must be remembered that neurofibromatosis is always a generalized disease and bowel involvement is not uncommon. Therefore, when gastrointestinal bleeding of obscure origin is encountered, an effort should be made to rule out the possibility of neurofibromatosis; and conversely, when intestinal hemorrhage or chronic anemia occurs in a case of neurofibromatosis, gastrointestinal involvement should be suspected.

We are reporting two cases of severe gastrointestinal hemorrhage produced by gastrointestinal neurofibromatosis to illustrate the difficulties frequently attending the diagnosis. In both instances the diagnosis of bleeding peptic ulcer was abandoned with reluctance by the clinicians, despite the fact that no objective evidence of peptic ulcer was ever obtained.

REPORT OF CASES

CASE 1.—H. M. E., a 43-year-old white male gas station attendant, was admitted to the hospital on Feb. 15, 1950, for treatment of recurrent amebiasis. His chief complaint on admission was the presence of tarry stools for two days, associated with pain in the epigastrium, relieved by food and aggravated by bending, stooping, or lifting. As long as he could remember, he was troubled with epigastric distress when scooping grain or pitching hay. It was noted that his skin was covered with pigmented patches, which the patient stated had been with him as long as he could remember and had never given any trouble. He also stated that his mother and one of his brothers had similar pigmented patches, as well as a few small skin tumors. Physical examination was not remarkable with the exception of the skin. The following comment was made by the examiner:

> The complexion is dark because of numerous pigmented areas resembling freckles. These are particularly numerous in the various skin creases. In addition, there are a number of brownish, pigmented areas, some several centimeters in diameter, which have the appearance of *café au lait* patches. There is a small subcutaneous tumor about 1.5 cm. in diameter in the center of the forehead. This is fluctuant and nontender. A few smaller (0.5 cm. diameter) masses are noted over the abdomen and extremities.

The patient's past history is extremely interesting and worthy of some study. He was first seen in January, 1948, at which time he complained of tarry stools for about five days, with epigastric distress, nausea and vomiting, and generalized weakness. At that time he had been treated by his personal physician for two years as a peptic ulcer patient. Apparently his chief symptom was intestinal bleeding. He maintained himself on a stri regimen and was asymptomatic until Dec. 25, 1947. F tributed his bleeding at that time to an overindulgence i Christmas spirit. The blood cell count at that admissio 3,500,000 red cells and the hemoglobin value was 47% anemia responded to medical treatment. The gastroi series was negative and showed no evidence of ulceration. N theless, a diagnosis of duodenal ulcer with hemorrhag made. He was discharged in February, 1948, returning t hospital in July, 1948 (five months later), again for int bleeding. No evidence of anemia was present at this tim gastrointestinal series was repeated and a motor mea studied. A small esophageal hiatus hernia was discove this examination, but the progress of the motor meal was and no evidence of peptic ulceration could be disovered ever, in studying his stools, cysts of Endamoeba hystolyti

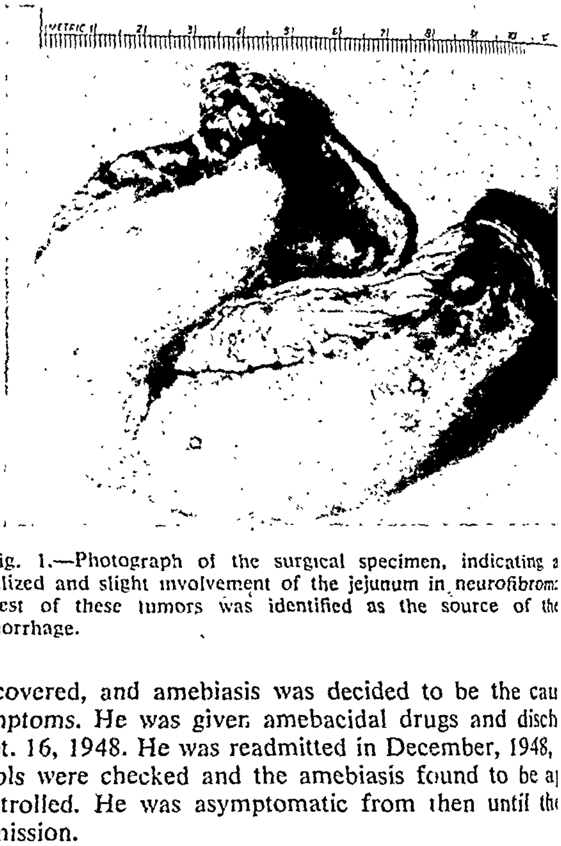

Fig. 1.—Photograph of the surgical specimen, indicating a localized and slight involvement of the jejunum in neurofibrom largest of these tumors was identified as the source of the hemorrhage.

discovered, and amebiasis was decided to be the cau symptoms. He was given amebacidal drugs and disch Sept. 16, 1948. He was readmitted in December, 1948, stools were checked and the amebiasis found to be a controlled. He was asymptomatic from then until th admission.

At this admission a mild anemia was present, 3,60 blood cells and 12 gm. of hemoglobin being found. Th intestinal series was again repeated and again found to b with the exception of a small hiatus hernia. A bariu was likewise normal. Surgical consultation was reque because of the chronic anemia and the history of a pain on exertion, it was felt that laparotomy and repa hiatus hernia was indicated. He was accordingly pre surgery, and on March 20, 1950, the abdomen was op explored. Numerous tumors were discovered, varyin from a pinhead to the size of a man's thumb, invo jejunum from the ligament of Treitz to approximately portion. A careful examination of the hiatus hernia re to be small and incomplete and covered by the left lo liver. It did not seem likely that this hernia was sym and it was felt that treatment of the tumors would alle symptoms. A routine appendectomy was done and 2 tumor-bearing bowel was removed, immediately dist ligament of Treitz (Fig. 1 and 2). The continuity of t was restored by end-to-end anastomosis, and two small sized tumors were removed from the serosa without pe

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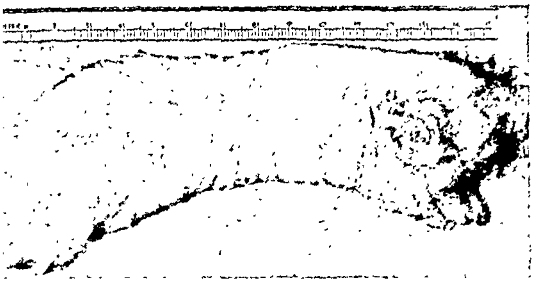
ıcosa. One additional navy-bean-sized tumor was removed the mid-jejunum by segmental resection and end-to-end mosis. The patient made an uneventful recovery from ıeration. The pathologist's diagnosis was: (1) neurofibroma, le, of small intestine; one neoplastic growth undergoing ıatous changes (Fig. 3), (2) lymphadenitis, chronic, (3) nor- ›pendix. Before discharging the patient the nodule on his ad was excised for biopsy. This confirmed the diagnosis of lized neurofibromatosis (von Recklinghausen's disease).

mment.—This patient was observed by various ɪs over a period of four years without a diagnosis ı Recklinghausen's disease being made. Even when iagnosis was made, its significance was not appre- l. Making a diagnosis of peptic ulcer in the face of eatedly negative gastrointestinal series cannot be ›ned. Confusing the symptoms of intestinal neuro- natosis with intestinal amebiasis and hiatus hernia derstandable. These latter conditions were elimi- by a therapeutic test for the former and laparotomy e latter.

E 2.—W. F. N., a 62-year-old white male farm laborer, dmitted to the hospital on May 5, 1950, for observation tate of chronic anemia. He was in no particular distress s blood count was normal. His past history revealed that s first seen in August, 1945, at which time he entered the al for treatment of a duodenal ulcer with secondary anemia.



2.—The surgical specimen opened to demonstrate the mucosa. It noted that the largest of the tumors is the only one protruding e bowel lumen. Furthermore, the mucosa over it is largely intact. ıglike nature of the protuberance gives a false appearance of an rater. The ring is in reality merely the edge of the tumor and is l by intact mucosa. The area of ulceration is represented by the lark area in the center of the ring.

:al examination at that admission noted the generalized fibromatosis and the examiner made the following observa-

ꜱ entire surface of the body is studded with nodules, ıg in shape and size from that of a pea to a walnut. There ıre numerous areas of pigmentation of irregular sizes and s scattered over the body, the color being similar to that :ckles.

·ay examination of the gastrointestinal tract was negative. :sophagus, duodenum, and colon were all reported as nor- Despite the negative gastrointestinal series, the patient was arged with diagnoses of: (1) duodenal ulcer with hemor- ·, (2) generalized neurofibromatosis (von Recklinghausen's se), (3) anemia, secondary to diagnosis 1 [*sic!*].

was next admitted to the hospital in February, 1946 (six hs later), for treatment of a recurrent duodenal ulcer with ia. He stated that since his previous discharge he felt well ıt for periods of weakness, and his hospitalization was at uggestion of his private doctor who discovered anemia to esent. The x-ray examination was repeated and the gastro- inal tract was again found to be free of any demonstrable, ısic lesions. A repeated gastrointestinal x-ray confirmed the hat no disease was present in the duodenum. Biopsy of one ıe skin nodules confirmed the previous diagnosis of von linghausen's disease. He was given peptic ulcer treatment ıte of the negative x-rays and a free gastric acid of only :rees and was discharged with the diagnoses of (1) recurrent duodenal ulcer (!), (2) von Recklinghausen's disease, and (3) anemia, secondary to diagnosis 1 (!).

He was readmitted on Feb. 8, 1950 (one year later), for the treatment of a duodenal ulcer with hemorrhage. Moderately severe hypochromic anemia was discovered to be present. The red blood cell count was 3,500,000 with only 6 gm. of hemoglobin. The gastrointestinal work-up was repeated with negative results as previously found. He was treated for the anemia and was discharged with the diagnoses of: (1) multiple neurofibromatosis involving the skin, (2) secondary anemia, cause undetermined; but a note was made that it was the opinion of the examiners that the bleeding was due to neurofibromatosis and

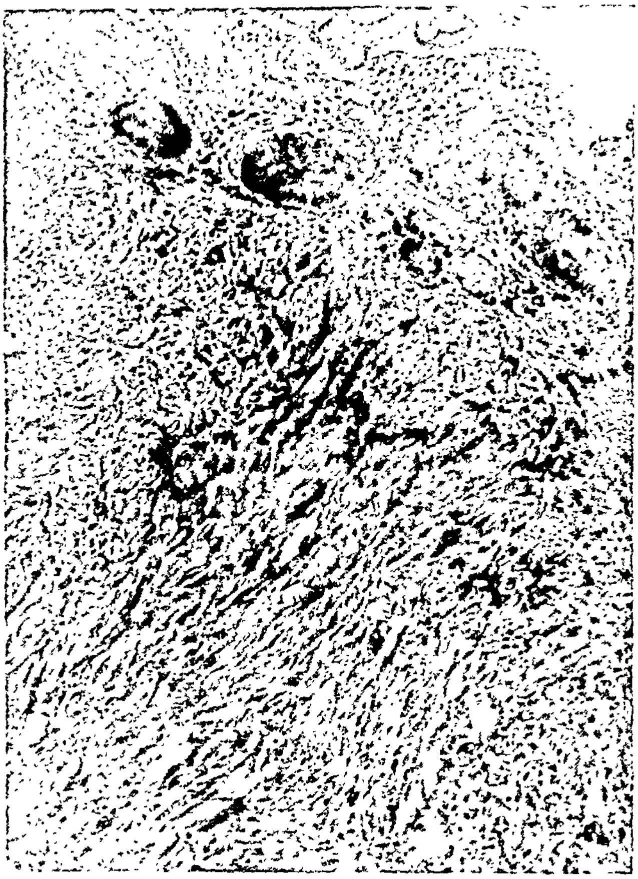


Fig. 3.—Microphotograph of a histological section taken through the base of the ulcer.

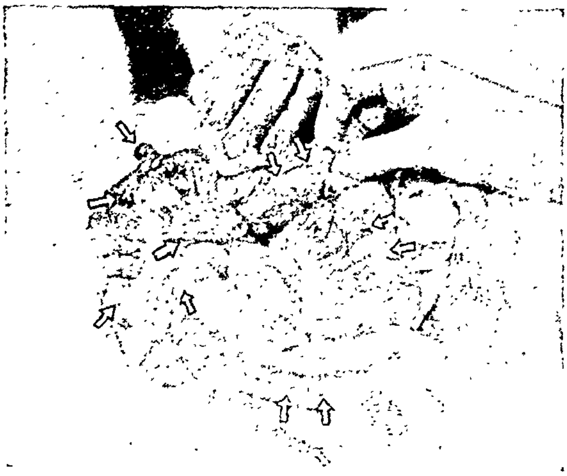


Fig. 4.—Photograph taken at the operating table. Because of lack of critical focus, the diffuse involvement of the bowel is difficult to show. The larger tumors are easily identified by the arrows.

volving the gastrointestinal tract, which could not be demonstrated by x-ray. It was recommended that he return to the hospital after a period of six weeks for further observation.

At the present admission his blood cell count was normal although the red cells were described as being microcytic. Biopsies were taken of several tumors of the skin which were described as being angioma, lipoma, and neurofibroma. These findings were felt to be compatible with a diagnosis of von Recklinghausen's disease. He was prepared for surgery, and on May 31 a laparotomy was done. Numerous tumor nodules were found extending throughout the length of the small bowel. There were none found in the colon. The largest of the tumors was about 5 cm. in diameter and on a rather slender pedicle (Fig. 4). Two of the largest tumors were removed by means of a partial resection of the bowel and a transverse closure of the defect. It was impossible to consider removing all of the tumors because of their vast number and, since the two largest had been excised, it was felt that further attempts at removing the tumors were unwarranted. A routine appendectomy was, therefore, done and the abdomen was closed in layers. The patient made an uneventful recovery. The pathologist's report was (1) fibromyoma of the small bowel, and (2) neurofibroma of the appendix.

Comment.—This case indicates that something was learned by our experience with the previous one. At any rate, a diagnosis of intestinal neurofibromatosis was made and the patient was operated on for the treatment of that condition. Here again it is remarkable how reluctant his physicians had been to abandon the diagnosis of bleeding peptic ulcer despite a total lack of objective evidence to indicate an ulcer.

COMMENT

Ewing [1] states that neurofibromatosis "consists of a congenital and often hereditary disturbance in the growth and differentiation of the fetal neuroectoderm, and a maladjustment with the mesoblastic tissues which it innervates." The multiple tumors, therefore, may involve any mesenchymal tissue, and as a result the manifestation of the disease may be protean. When there is concomitant skin involvement, the diagnosis is usually obvious and is seldom missed by the astute clinician. When skin involvement is minimal, the manifestations of the disease may be very puzzling. Indeed, many of the specific manifestations of neurofibromatosis have, in the past, been classified as separate disease entities, such as osteitis fibrosa cystica, tuberous sclerosis, hairy nevus, and elephantiasis.

When the gastrointestinal tract is involved, the symptoms produced are very vague. The tumor arises somewhere in the mesenchymal tissues and gradually grows in size until the overlying mucosa becomes ulcerated. Ulceration of the mucosa is always owing to the presence of a growing tumor under it and not to direct involvement. This is characteristic of all mesenchymal gastrointestinal tumors. Since ulceration and subsequent hemorrhage is a function of the mucosal pressure produced by the tumor, it becomes obvious that bleeding will occur at different times in the various tumors. A small, submucosal nodule growing into the bowel lumen will produce ulceration much sooner than a larger, subserous nodule growing outward into the peritoneal cavity. Bowel obstruction is seldom produced, and pain is minimal. A tumor large enough to be palpable will usually force a surgical exploration, even if the diagnosis of neurofibromatosis is missed. The condition, however, should be suspected long before the tumor becomes palpable. The diagnosis depends on the demo of two facts: (1) microcytic anemia due to chr testinal hemorrhage of obscure origin (or acute in hemorrhage of obscure origin), and (2) evid neurofibromatosis.

Surgical intervention is indicated once the di is suspected. The intestinal bleeding can only b trolled by resecting the involved portion of bowel though elimination of the disease is not an att goal, control of chronic hemorrhage is sufficient tion for operation. Sarcomatous change in the tu neurofibromatosis has long been recognized as a d possibility and is an added incentive for surgical e tion. The probable incidence of malignant degen of each tumor would be a difficult thing to evalua likely, however, that rapidly growing nodules or a den change in size of an old nodule indicate malignant change has already occurred. Furtherm seems logical, and is compatible with the behav other types of malignancy, that when malignant eration occurs it will be multicentric rather than ized. It is to be expected, then, that operation removal of the tumors of von Recklinghausen's will result in the discovery of occasional malig and will occasionally be followed by malignant de tion of a remaining nodule.

The technique of resection of intestinal neurof should include an appreciation of the activity o tumors. Since they seldom metastasize to lymph a block dissection such as is used for carcinom indicated unless lymphatic involvement is demon Local excision at a sufficient distance from the usually adequate. Segmental resection of the indicated if the nodules are so closely scattered dividual excision is impractical. Associated pre such as preparing the bowel with antibiotics and ing the anemia before operation should not be ne

CONCLUSIONS

Generalized neurofibromatosis (von Reckling disease) may involve the gastrointestinal trac intestinal neurofibromatosis has few symptoms positive clinical findings. Intestinal neurofibr must be suspected when a patient with ge neurofibromatosis shows signs of acute or chr testinal hemorrhage.

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[1] Ewing, J.: Neoplastic Diseases: A Treatise on Tumors, ed delphia, W. B. Saunders Company, 1940.

The Diabetic in Industry.—Diabetics are now followin occupations and holding positions in a wide variety industries. There are few occupations, indeed, fro diabetics who take insulin need be excluded. These few in which the worker has more or less constantly in the safety of others as well as himself. Such few occ are those of locomotive engineer, airplane pilot, bus worker on high buildings or with potentially dange chinery. Although in such positions the chance of haza worker or his associates from a severe insulin reacti cipient acidosis is relatively small, the possibility ex there is an abundance of other work for the diabetic Harry Blotner, M.D., and Alexander Marble, M.D., Control: Detection, Public Education and Community *New England Journal of Medicine,* Oct. 11, 1951.

CLINICAL NOTES

ECTION OF PRIMARY TUMOR OF COLON EE YEARS AFTER EXCISION OF TASTATIC TUMOR

dgeway Trimble, M.D.

ght C. McGoon, M.D., Baltimore

vestigators[1] have found that the incidence of multi-
rimary *malignant tumors in* all cases *of malignant*
rs is about 3%. Of these tumors, roughly half
r simultaneously and half after varying intervals of
.[1a] *It has been computed*[2] *that an individual with*
nalignant tumor is more likely to have, subsequently,
primary malignant tumors than can be accounted
n the basis of chance alone. These multiple lesions
or may not occur in the same organ.

he incidence of multiple primary carcinomas of the
n has been estimated to be from 3.5% to 5%,[3] these
rring either simultaneously or at different times.
orts of such cases have been rather numerous[4] and
e to stress the point that palpation of the entire colon
ld be performed at the time of laparotomy for car-
ma. In two reported cases[5] each patient had four
nct primary carcinomas of the colon removed at
rent times.

he radical removal of metastases to lymph nodes is,
ourse, common, but surgical attack upon metastases
istant organs is still *infrequent. Three organs prin-*
lly lend themselves to the successful surgical eradica-
of metastases: the liver, the lung, and rarely the
n.

nce the first reported case of excision of metastases
e liver in 1888,[6] several similar cases and groups of
s have appeared in the literature.[7] Some of these
rations resulted in apparent cure of the disease. The
known case report of successful excision of pulmon-
metastases was made in 1944[8]; twelve years previ-
ly the patient had undergone lobectomy for a solitary
astasis. A report on the cases from the literature and
n various clinics, in 1947,[7e] listed a total of 24 cases
ulmonary resection for a solitary metastasis. Half of
patients were free of recurrence at the time of the
ort. Another group of several cases was reported a
months later,[9] one of which is of particular interest.
patient had had surgical removal of an adeno-
inoma of the sigmoid in 1944, underwent right upper
monary lobectomy 22 months later for metastatic
nocarcinoma and had a metastatic lesion of the brain
oved some six months after the lobectomy. The pa-
t was well at the time of the report, two months later.

he incidence of metastatic lesions of the brain in all
ns of intracranial lesions has been variously reported
being from 4.2% to 27.2%,[10] the probably correct
re being between 10% and 15%. In a series of 150
tine autopsies in which metastatic brain lesions were
nd,[10c] the brain proved to be the only metastatic focus
ver one-fourth of the cases. Although this fact might seem to encourage attempts at ablation of metastases to the brain, actually successful results following such attempts are extremely rare.

Dandy has stated that[10c] "a cure has probably never *resulted from removing an intracranial metastasis. Occa*sionally patients have been entirely relieved of symptoms for two or three years when a metastasis could be removed with a zone of normal brain." Oddly enough, it must have been at about the time he wrote these words that he performed the craniotomy on the patient whose case is to be reported. As stated above, the most unusual feature in this case is that the primary tumor was not to be removed until two and one-half years later.

REPORT OF CASE

S. L., a white man, was admitted to the Johns Hopkins Hospital on the neurological service in December, 1943, at the age of 54. He complained chiefly of severe frontal headaches for five months, with occasional radiation to the occipital region. There had been progressive difficulty in walking, a shuffling gait, poor muscular coordination and concentration, and occasional morning vomiting. These were all subject to wide daily variation. On examination he was seen to be well developed, somewhat thin, and with poor memory and poor powers of concentration. No *abnormal conditions were found* except on neurological examination, which showed left homonymous hemianopsia with slight bilateral papilledema, most noticeable on the right. There was loss of position sense in the left foot and of stereognosis in the left hand. The patient was extremely unsteady on his feet and the Romberg test was positive. No definite motor disturbances were present. A diagnosis of tumor in the right parieto-occipital

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5. Mayo.[3a] Edwards.[4i]

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region was made. Dr. Dandy performed a craniotomy on Dec. 13 and excised the entire mass intact; this was about as large as one's fist (7 × 6 × 4.5 cm.), very hard, and weighed 86 gm. The bone flap was replaced. On pathological examination the specimen was noted grossly to be fairly well circumscribed except at one portion where it invaded the cortical tissue. On microscopic examination it was shown to consist of large, irregular, undifferentiated cells with areas of necrosis here and there. he cells were definitely not those of a brain tumor but rather of an epithelial carcinoma of some sort. The microscopic appearance suggested that of a lung tumor (Fig. 1).

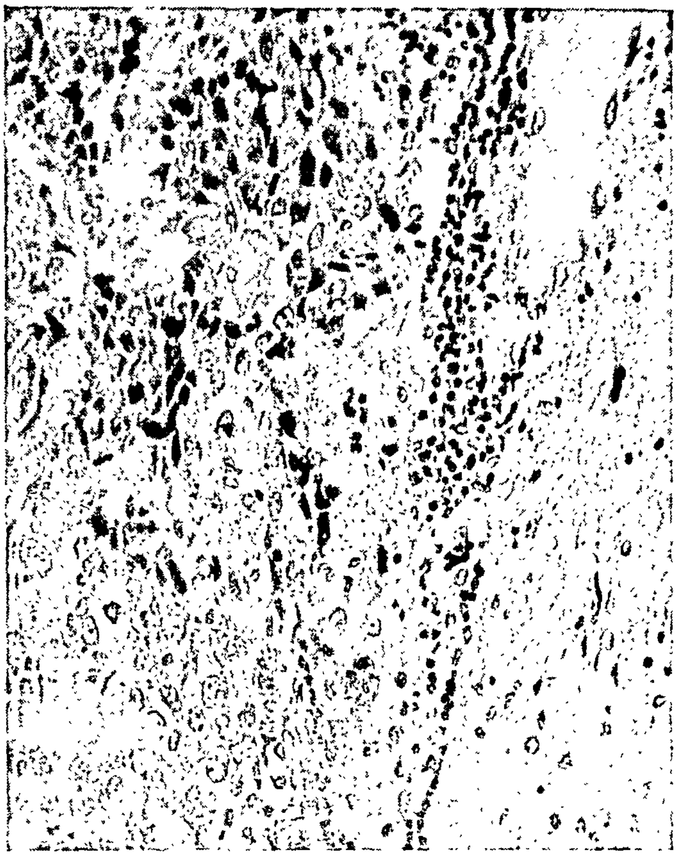

Fig. 1.—A section through the border of the metastatic lesion removed from the right occipital region of the brain in 1943. This shows undifferentiated carcinoma in the brain (× 215).

The postoperative course was uncomplicated, with rapid disappearance of the preoperative complaints. An x-ray film of the chest showed no pulmonary lesion, but further study was not carried out.

For some 25 months the patient was well and conducted his business affairs regularly, but at the end of this time he began to suffer with burning epigastric pain associated with intermittent diarrhea; there was occasional streaking of the stools with bright blood and the loss of 12 to 15 lb. (5.4 to 6.8 kg.) in weight.

Five months after the onset of these symptoms the patient was again admitted to the hospital and was referred to us by Dr. F. J. Otenasek, who had assisted Dr. Dandy at the craniotomy. On this examination there was found to be residual, complete, left homonymous hemianopsia, evidence of moderate loss of weight, a hemoglobin reading of 9.8 gm., and a freely movable mass deep in the right lower quadrant. A gastrointestinal series was negative, but a barium sulfate enema showed a definite deformity of the cecum due to neoplasm.

On Aug. 12, 1946, exploratory laparotomy was perfo
one of us (I. R. T.). The cecum was found to be the se
dense scirrhous tumor aproximately 7 cm. in diameter,
entirely within the wall of the cecum. The ascending colo
this appeared normal, but a similar mass was felt in the
verse colon. This second mass seemed to be attached by a
narrow pedicle to the mesenteric border of the colon. T
of the colon was normal until one reached the lower
where a large, soft papilloma could be felt within the
This measured about 4 cm. in length and 2 cm. in width.
sion was made to resect the two malignant-appearing
and to leave the benign-appearing one in place for the
Accordingly, the lower 6 in. (15.3 cm.) of the ileum, the
dix, the cecum, the ascending colon, and the first half
transverse colon were resected in one block together wi
mesenteric attachments. A lateral isoperistaltic anastomo
made between the terminal ileum and the colon.

Postoperatively the patient did well and was discha
the 16th postoperative day. The pathologist reported the
cecum, partially obstructing the ileocecal valve, there
large fungating ulcerated tumor occupying almost th
lumen. The serosal surface was puckered and covered b
but no definite tumor mass could be seen to penetrate th
Several enlarged lymph nodes were felt in the surround
tissue. At approximately the hepatic flexure there was
tumor mass 3 cm. in diameter and partially encircling th
This likewise had raised edges and was ulcerated, bu
could not be seen to penetrate the serosal surface. The
ing mucosa of the large intestine contained numerou
having narrow bases and pedicles. There were no such
the mucosa of the ileum. The sections showed both tum
undifferentiated, mucus-forming adenocarcinomas diffu
trating the wall of the bowel, but neither one penetra
pletely through the serosal surface and fatty tissue su
the bowel. No metastases were found in six lymph
section (Fig. 2).

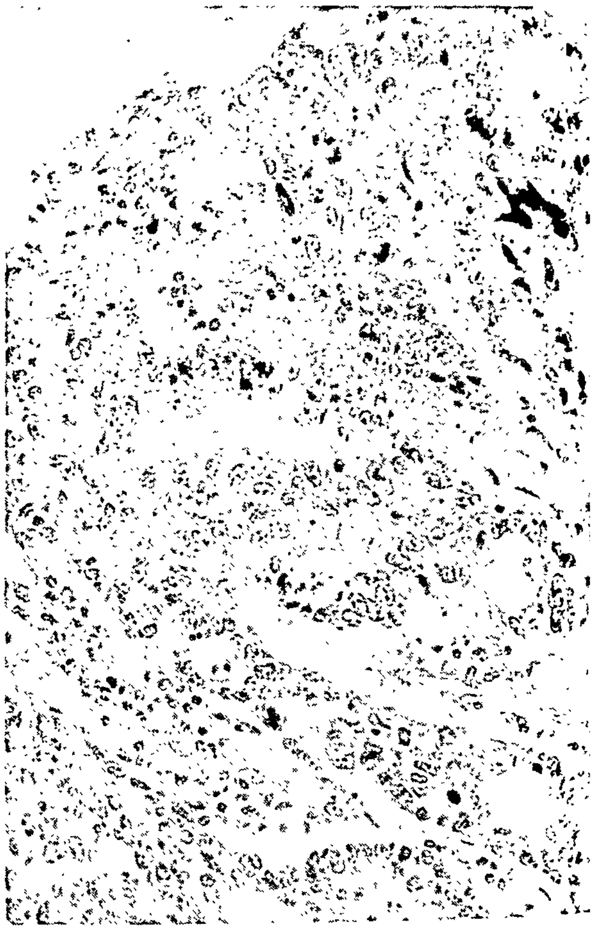

Fig. 2.—A section through the large mass occupying the
moved in 1946, showing undifferentiated, mucus-forming aden
(× 265).

After discharge the patient remained in apparentl
health, but was called back to the hospital after thre
for study. Proctoscopic examinations showed a number

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ılyps in the lower sigmoid and upper rectum and the large ılyp with a broad base 12 cm. proximal to the anal orifice, was the one which had been felt at operation. No ulcera- 'as seen in these polyps. A barium enema revealed a num- additional polyps in the remainder of the transverse colon ı the upper portion of the descending colon. Resection of mainder of the colon was advised but was refused by the t.

ıin the patient lived normally for about two and a half after the resection of the colon. He returned to the hos- ıt that time, however, about five years and two months he craniotomy, because of a three-week history of inter- t partial intestinal obstruction associated with abdominal s and, paradoxically, diarrhea. He had lost about 15 lb. g.) in those three weeks. On examination the homonymous nopsia was seen to persist, and in addition the abdomen noderately distended, with audible, high-pitched active ılsis, but no masses were palpable. His hemoglobin reading 4 gm. On x-ray examination an obstructing mass was seen left half of the transverse colon, just proximal to the c flexure.

3.—A section through the obstructing mass at the splenic flexure, d in 1949, showing undifferentiated carcinoma invading the bowel × 215).

ı Feb. 23, 1949, one of us (I. R. T.) again performed laparot- and found a large growth in the transverse colon just mal to the splenic flexure. Accordingly the old ileocolostomy ıll the remaining portion of the transverse colon, together the entire descending colon down to just above the peri- ıl pelvic reflection, were resected. The terminal portion of igmoid was opened and a number of small benign-looking ɔs were excised. An open end-to-end anastomosis was per- ed between the terminal ileum and the stump of the rec- intraperitoneally. The operator felt that a complete abdomi- rineal resection of the rectum was unnecessary since rectal ps which might recur could be easily removed by cautery ı below. The postoperative course was again uneventful, and ɔatient was discharged on the 15th postoperative day.

ıis third surgical specimen showed an ulcerated, circular ır involving the entire bowel wall toward the proximal end ıe specimen, and a large multilobulated polyp in the distal with 30 or 40 small polyps throughout the remaining por- ı of the segment. Microscopically the two large tumors were n seen to be adenocarcinomas (Fig. 3); all the small polyps : apparently benign.

As of April, 1951, the patient was living and apparently well, and was carrying on his normal daily activities. It had been seven years and four months since the large metastastic adenocarcinoma was removed from the brain, four years and eight months since right colectomy was performed, with removal of two separate primary carcinomas of the colon, and two years and two months since left colectomy was performed, with removal of two additional separate carcinomas.The patient remained active and healthy, and no evidence of recurrence of the disease was found on physical examination, April 26, 1951.

SUMMARY

A case is reported in which excision of a metastatic carcinoma from the brain was followed, after an interval of several years, by removal of the primary carcinoma from the colon. Of additional interest in this case is the fact that there were four separate carcinomas of the colon, two removed two and one-half years after the brain operation and two more three years later.

8 W. Madison St.

SCROTAL CYSTOCELE

Bernard Levine, M.D., New York

Inguinal herniation of the urinary bladder is not uncommon. Its incidence has been estimated as varying from 1% to 3% of all inguinal hernias. However, inguinal bladder hernia descending into the scrotum is rare. The purpose of this report is to add two cases of scrotal cystocele to the literature and to review briefly the previously published cases.

Thirty cases of scrotal bladder hernia have been reported. In each of these cases a major portion of the bladder formed all or a part of a large inguinal hernia. The magnitude of the vesical hernia prompted several authors to make the diagnosis of a herniated diverticulum of the bladder.

REPORT OF CASES

Case 1.—S. M., a man aged 57, was first seen in March, 1947. At that time his complaints were two episodes of hematuria in January, and one attack of left ureteral colic in February. He had nocturia once per night. As the result of an x-ray taken by his physician after the colic, he was told that he had damaged kidneys and that he probably passed some gravel. In an excretory urogram taken by his physician there was noted a bilateral hydronephrosis with hydro-ureters. Function was delayed so that the urinary tract was best visualized at 90 minutes after the injection of the contrast media. The bladder was noted to be either pushed or drawn to the right side of the pelvis.

Physical Examination.—The kidneys were not palpable. There was no costovertebral tenderness. The genitalia were normal. The prostate was firm, smooth, and not enlarged. There was a moderate-sized right scrotal hernia which was known to have been present for seven years.

The residual urine was 10 cc. However, before removing the catheter, pressure was placed on the hernia. This resulted in the delivery of an additional 150 cc. of residual urine. A retrograde cystogram was then made. This revealed the pelvic portion of the bladder to be drawn toward the left side. The major part of the bladder was present in the inguinal and scrotal regions (Fig. 1).

A right inguinal incision was made. The bladder was found to make up the content of an extraperitoneal direct inguinal hernia. The inguinal and scrotal bladder was mobilized and replaced, unopened, into the abdomen, and a hernial repair was done. A urethral catheter was left indwelling for four days to

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From the Genito-Urinary Service of [illegible] S. Lubash, Beth Israel Hospital keep the bladder at rest. The postoperative course was uneventful.

Follow-up.—A follow-up excretory urogram one month after operation revealed a normal bladder, normally situated. There was no longer any hydronephrosis on the left side and the dilatation of the right pelvis and ureter was considerably diminished. One year later another urographic study showed maximum excretion of the contrast media at 10 minutes after injection. The urogram was entirely negative except for some minimal residual dilatation of the lower right ureter.

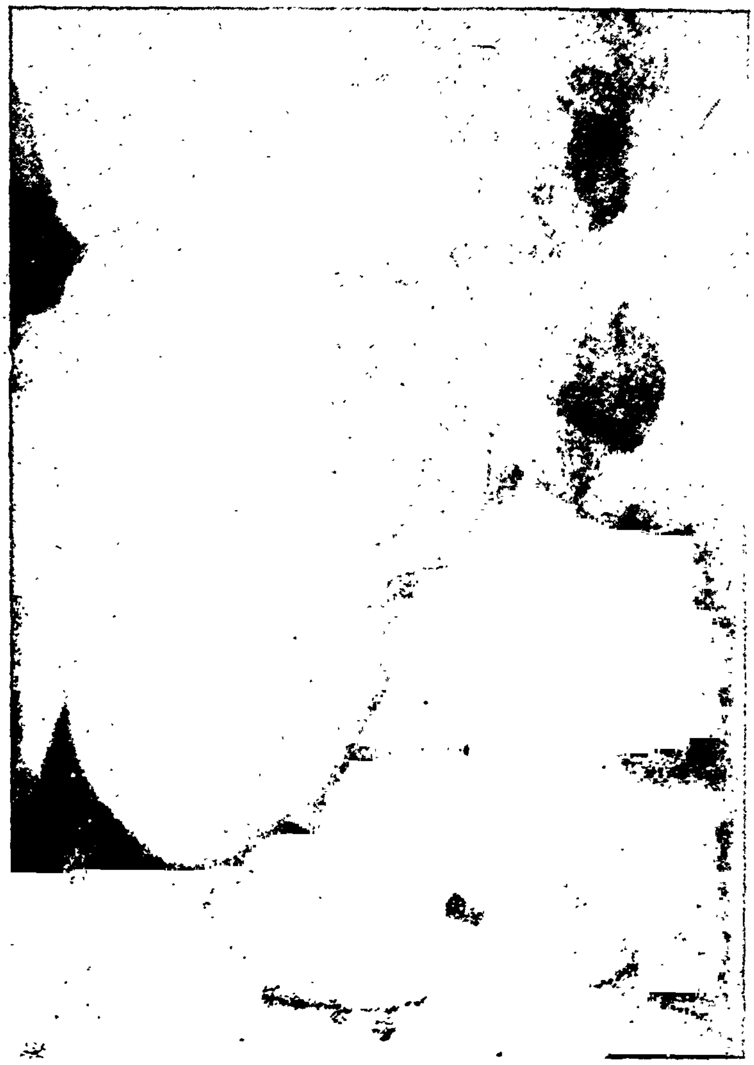

Fig. 1.—Case 1. Preoperative cystogram.

Case 2.[1]—C. R., a man aged 81, was admitted to the Beth Israel Hospital in April, 1948. His complaints at that time were hematuria of four days' duration, frequency, and dysuria. In December, 1946, he had a suprapubic cystolithotomy and prostatectomy.

Physical Examination.—Excretory urogram and cystoscopy revealed a 4-cm. calculus within the bladder. The upper urinary tract was normal. There was no bladder neck obstruction. A suprapubic cystolithotomy was performed. In looking for the cause of the calculus formation, a large right scrotal hernia of long standing was investigated by cystogram. This showed a right scrotal cystocele (Fig. 2). In view of the patient's age and generally poor condition, operation was deferred. However, he was instructed in the placing of local pressure on the hernia to empty the bladder completely whenever he voided.

Follow-up revealed that he had the hernia operated on by another physician, who resected the herniated bladder. The patient died postoperatively.

Bladder hernias have been described as intraperitoneal, paraperitoneal, and extraperitoneal, depending on their relation to the peritoneum. In the intraperitoneal type a complete peritoneal sac is present and th is contained within it. In the paraperitoneal ty herniated bladder process is found to be cover peritoneal sac on one side only, the other side bladder being uncovered. In the extraperitoneal ty herniated portion of the bladder is neither co with nor engaged in a peritoneal sac. The com forms are the paraperitoneal and the extraper hernias. Of the 32 cases reported (including the two), 10 were paraperitoneal, seven were ext toneal, and one was *intraperitoneal*. In the remain cases, either the type was not mentioned or op was *not* performed.

Inguinal bladder hernias have a predilection f right side. Heineck[2] in a review of the literature 88 right vesical hernias and 58 left vesical herni scrotal cystocele we have found the right side in in 20 cases and the left in nine. The side was not tion in three instances. Nine patients had been pre operated on for inguinal hernia.

The patient with a scrotal bladder hernia will have some urinary complaints. Frequency, noctur dysuria have been commonly noted. A significa is that of two-stage urination. The patient emp

Fig. 2.—Case 2. Preoperative cystogram.

contents of the abdominal portion of the bladde first stage and then voids again with the help of pressure on the hernia. This was present in nin Eight patients presented themselves complaining urinary retention.

Each of the patients had a moderate to lar scrotal hernia. Residual urines were frequently in the absence of an enlarged prostate. The residual may vary considerably from time to time in the patient, depending on the amount of urine within ernial sac. The hernia may be fluctuant and emit percussion note. Bierhoff and Unger [3] noted that rotal cystocele transmitted light during cystoscopy. al observers reported that pressure on the scrotal ı provoked a desire to urinate.

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[1] Case 2, patient C. R., is reported through the courtesy of Dr. S. Wilhelm.

[2] Heineck, A. P.: Hernia of the Urinary Bladder, Surg., Gynec. & Obst. 22: 592, 1916.

e cystogram, first used by Sgalitzer [4] in 1921, pro- an excellent diagnostic measure. It was used to the diagnosis in 16 cases. The characteristic abality noted was a dumbbell-shaped bladder with a segment present in the scrotum and the remaining n of the bladder situated in the abdomen. The er was usually drawn somewhat toward the side of ıtion. If the patient is allowed to void the contrast ı and an x-ray is taken, a residual collection may ɜn trapped in the herniated bladder.

Case 1 there was an associated bilateral hydroneis. This was probably caused by an angulation in gion of the ureterovesical junction, which in turn he result of the bladder displacement. This condivas previously reported in two cases, both of which postmortem findings.[5] As far as I could determine, 1 was the first case of bilateral hydronephrosis due otal cystocele in which the diagnosis was made in ving patient. Repair of the hernia and replacement bladder resulted in a correction of the hydroneis.

e treatment of scrotal cystocele is surgical. How the types of operation have varied. Ten patients not operated on either because of the patient's poor ition or his refusal. Of these, five patients died.

six cases the herniated portion of the bladder was ɜd and repair performed. Five patients did well, ne died.

Gayet's [6] case a cystostomy had to be resorted to ise of acute urinary retention. This patient died peratively.

e scrotum was incised in two cases because of an in diagnosis. Guyon made a diagnosis of right nal and scrotal abscess and incised the scrotum, a urinary gush resulting. An indwelling urethral ter was inserted, and the urinary fistula closed in 50 Plater incised the scrotum thinking that it cond a tumor, and a urinary flow with much sand re1. A urinary fistula formed which closed eventually. ie bladder was opened and then repaired without al resection in three cases. Two of these were ed by error. In the third case Rougier [7] performed guinal cystolithotomy prior to hernioplasty. All had satisfactory end-results.

ie most favored procedure, which was done in 11, was replacement of the unopened bladder followed ernioplasty. All except one were successful. In this the patient suddenly died on the third postoperative

SUMMARY AND CONCLUSIONS

vo cases of scrotal cystocele (scrotal bladder ia) are presented. This condition may cause bilateral onephrosis, and Case 1 is to my knowledge the first in which the diagnosis was made in the living patient.

The literature is briefly discussed.

The preferred treatment of scrotal cystocele is replacement of the unopened bladder and hernioplasty.

130 E. 67th St.

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GASTROINTESTINAL ALLERGY SIMULATING REGIONAL ENTERITIS

REPORT OF A CASE

George I. Blumstein, M.D.
and
Julian Johnson, M.D., Philadelphia

The patient with repeated attacks of gastrointestinal allergy usually recognizes the relationship between his offending allergen and the onset of symptoms. Since symptoms and signs seldom warrant surgical intervention, the bowel probably is not often visualized during such attacks. In instances of negative abdominal exploration, in which it is suspected that gastrointestinal allergy may be the correct diagnosis, the gross appearance throughout the bowel is that of a mild edema, if any change at all is noted.

In an intestinal resection recently performed by us for presumed regional enteritis, the diagnosis on histological examination proved to be gastrointestinal allergy. The occurrence of striking localized changes in the gross appearence of the bowel, as the result of an allergic response, is probably rare, and the possibility of such an occurrence is surely not widely recognized.

REPORT OF CASE

A. E., male, aged 26, was admitted to the University hospital on July 6, 1949, because of midabdominal cramping pain of eight hours' duration, associated with nausea but with no vomiting. He had had one loose bowel movement that morning. His family physician had advised hospitalization because of right lower quadrant tenderness and mild rigidity. His white blood cell count was 13,400 with 70% polymorphonuclear leucocytes and 2% eosinophils. The urine was normal.

The patient had experienced three previous similar attacks of abdominal distress accompanied by right lower quadrant tenderness. The first had been on March 13, 1949, and had lasted 24 hours. The second, on April 27, 1949, was the most severe and had lasted 48 hours. The temperature had been normal and the white blood cell count 10,000, with 66% polymorphonuclear leucocytes and 5% eosinophils. The third attack had been on June 5, 1949, and had lasted one day. The family physician had considered the possibility of gastrointestinal allergy.

The patient was known to have had asthma since the age of five years. The asthma was usually not very troublesome and was precipitated primarily by respiratory infections. There were no known food, drug or inhalant allergies, but the family history was strongly positive for allergic response on the paternal side.

Assistant Professor of Medicine, Temple University School of Medicine (Dr. Blumstein) and Professor of Surgery, University of Pennsylvania School of Medicine (Dr. Johnson).

Physical Examination.—At the time of the patient's admission to the hospital physical examination revealed mild tenderness and muscle guarding over the right lower quadrant. There was no rebound tenderness. There was marked tenderness on the right side on rectal examination. Sibilant and sonorous rales were heard throughout the lungs.

Preoperative Course.—The dull pain persisted in the right lower quadrant, and on several occasions there were sharp, colicky pains of short duration. The patient had one small, liquid stool. The morning after his admission the tenderness and mild rigidity in the right lower quadrant were still present and rebound tenderness was now evident. The white blood cell count had risen to 16,000 with 67% polymorphonuclear leucocytes and 7% eosinophils. The temperature was still normal. It was thought that the three previous attacks and the present attack might well be due to acute appendicitis.

Operation.—Operation was performed under spinal anesthesia. About 500 cc. of clear fluid were found in the abdominal cavity. The appendix appeared to be normal. The terminal ileum was markedly thickened and edematous. About 35 cm. of the terminal ileum was involved. The appearance was thought to be typical of the subacute stage of terminal ileitis.

In view of the three previous attacks it was reasoned that there was persistent, or recurring, regional enteritis and that immediate resection was justifiable rather than a closure of the abdomen followed by further attacks. The disease was confined to the terminal ileum. The possibility of its being an allergic phenomenon was not considered. About 45 cm. of the terminal ileum was resected, along with the right part of the colon, and an ileotransverse colostomy performed.

The gross pathologic examination indicated that the resection had been carried about 10 cm. beyond the disease process. The diseased ileum was thick and edematous. The vessels of the serosal surface were congested and there was a white mottling under the serosal surface. The mesentery contained several enlarged nodes.

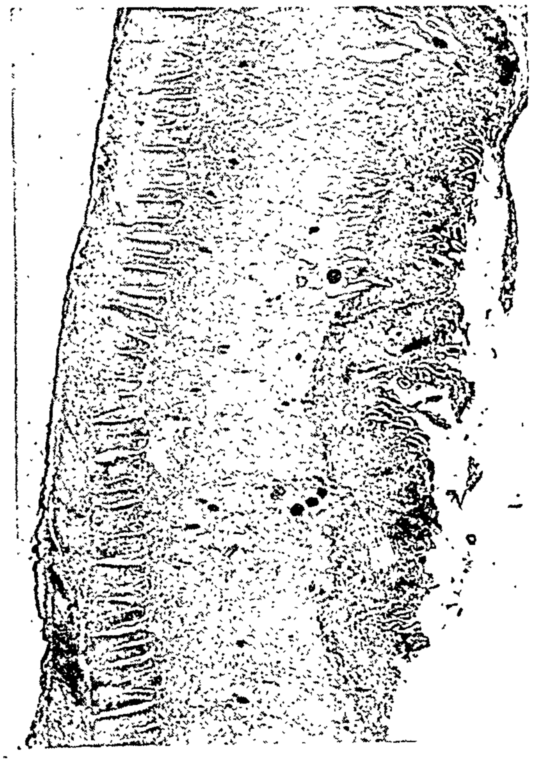

Fig. 1.—Section of the ileum showing marked edema of the submucosa and subserosa with infiltration by myriads of eosinophilic leucocytes.

The surgical pathologist's report on the histologic sections was as follows: "Sections of the termnial ileum show a marked edema of the submucosa and subserosa [Fig. 1]. The entire wall is infiltrated by myriads of eosinophilic leucocytes [Fig. 2]. The process apparently is an entirely allergic one, without any evidence of ulceration of the mucosa or of an ordinary pyogenic infection, and extends from the proximal to the distal of the resection. Edema in the areas designated above is more marked in the distal 30 cm. of the resected ileum. nodes in the mesentery show dilatation of the sinuso edema and eosinophilic leucocytic infiltration. These suggest very strongly that this is an allergic enteritis."

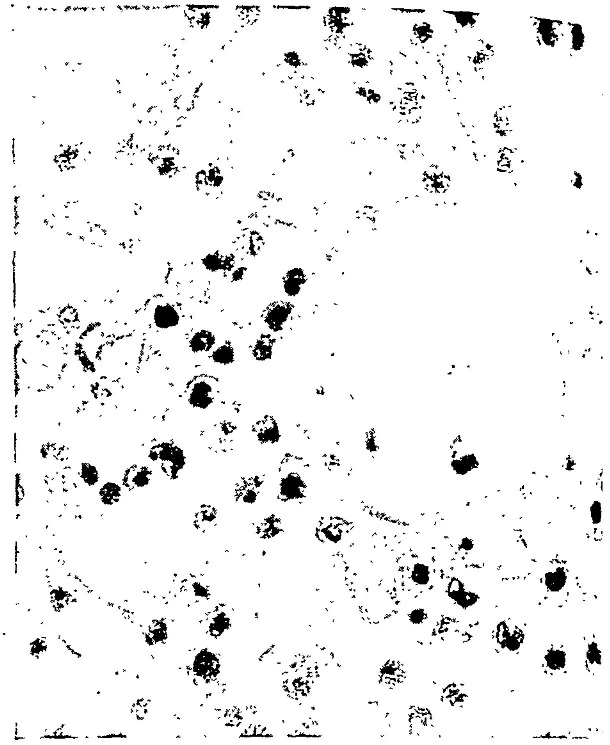

Fig. 2.—An area of the submucosa of the ileum showing massive philic infiltrate.

Postoperative Course.—The patient made an unevent covery and returned to work after a short convalescence. next four months he experienced three more attacks of abd distress, all following the ingestion of seafood. The fi after eating oysters and lasted two and one-half hours. T ond followed a lobster dinner, was quite severe and respond to therapeutic doses of ephedrine, epinephrine histaminics. The attack lasted 48 hours. The final atta lowed the ingestion of mock turtle soup and lasted 12 The patient has avoided seafood since that attack and h free of gastrointestinal symptoms.

COMMENT

The diagnosis of gastrointestinal allergy is arrived at by clinical means and is not considere unless the cause-and-effect relationship between fending allergen and the gastrointestinal sympt established. Peripheral eosinophilia, or the roen graphic demonstration of gastric retention, abnor testinal motility with segmentation of the small bow decreased luminal caliber should arouse the suspi allergic involvement of the gastrointestinal tract involvement occurs most often in patients with ot lergic manifestations.

The patient reported fulfils the necessary r ments. He had an allergic background. The relati between the ingestion of seafood and the attacks dominal pain appears to be established beyond ar sonable doubt. Lastly, the microscopic appeara the resected ileum showed the typical picture of ar gic response.

While the presence of varying numbers of eosin in the bowel wall is not abnormal,[1] they are not ap seen to the exclusion of all other types of cells ex hypersensitive states The ability of the ileum to a ıock organ" has been amply demonstrated by Gray, rten, and Walzer.[2]

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[1] Ham, A. W.: Histology, Philadelphia, J. B. Lippincott Company, 1950, p. 440.

Although the ileum in this patient presented the gross ıearance of regional enteritis, it is unlikely that the rgic state is of importance in the etiology of regional ritis. Only a single reference was found in the literre[3] suggesting such a relationship. If such a correla- existed, regional enteritis could be expected to occur quently in allergic patients with other stigmas of a ersensitive state, patients in whom the cause-and- ct relationship could be demonstrated in a fair protion of cases. Furthermore, the histological picture in regional enteritis does not resemble that seen in er allergic states. It would seem, therefore, that the reported demonstrates the possibility of an error diagnosis between the two conditions on gross exination rather than any relationship between them n the standpoint of etiology.

SUMMARY

male, aged 26, who had had recurrent bouts of abninal distress was operated on during one such at- because of a presumptive diagnosis of recurrent te appendicitis. The terminal ileum was involved by ıt appeared to be reasonably typical regional enteritis. er resection, the histological picture of the ileum was nd to be typical of an allergic reaction.

The patient subsequently had three additional similar sodes of abdominal pain, each after the ingestion of food. He has remained asymptomatic on a seafood- diet since the third attack. This case therefore fulfils clinical, pathologic, and etiological requirements for diagnosis of gastrointestinal allergy.

039 Delancey Place (Dr. Blumstein).

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IOLECYSTITIS IN CHILDHOOD

PORT OF A CASE WITH COMMON DUCT CALCULI

ex W. Ulin, M.D.

eph L. Nosal, M.D.

l

lliam L. Martin, M.D., Philadelphia

In 1949, we studied the literature on cholecystitis in ildhood.[1] This included a critical review of most cases scribed, as well as a survey by letter of 21 major clinics America and England. We found that many cases of patitis and peritonitis had been inaccurately reported cholecystitis. We judged that there were less than 400 thentic cases of cholecystitis since the first report in 22.[2] Although only 19 had common duct stone, we ırned that cholecystitis in childhood is often complited by jaundice, apparently obstructive. The signifince of this observation lies in the increased incidence hepatocellular types of jaundice. However, its clinical portance is tempered by the rare occurrence of cholestitis in young persons.

Our review included two fatal cases of cholecystitis with common duct obstruction, proved at autopsy. The patients' condition had been misdiagnosed as infectious hepatitis. We encountered the same diagnostic problem in a case of calculous cholecystitis and common duct stones in a 13-year-old girl.

REPORT OF CASE

M. G., a 13-year-old white girl, was admitted to the Sunbury (Pa.) Community Hospital on Aug. 16, 1948. She complained of pain in the right upper quadrant of the abdomen, of 24 hours' duration. She had been in excellent health prior to September, 1947, when she first noticed pain in the right upper quadrant. This pain was mild at first and periodic, occurring every two to three weeks, with no definite relation to food intake. During the first few months the pain did not radiate, but remained localized. Later it became more severe, was followed by nausea and sometimes vomiting, and radiated around the right subcostal margin to the inferior angle of the right scapula. In May, 1948, after a typical attack of abdominal pain, she noted jaundice of the skin and scleras, light clay-colored stools, and dark urine. The jaundice subsided after several days. In June the pain and jaundice recurred. She was observed at another hospital, where a diagnosis of infectious hepatitis was made. In July and August, 1948, attacks of pain in the right upper abdominal quadrant recurred, this time without jaundice. She was admitted to the Sunbury Community Hospital during a typical attack of biliary colic; there was no chill or jaundice, and stools and urine were normal in color.

The past medical history, family history, and social history contained no significant information except the fact that the mother had biliary tract disease and had never undergone surgery. Physical examination revealed an acutely ill and dehydrated child. The temperature, pulse rate, and respiratory rate were normal. Tenderness and muscle guarding were noted in the right upper quadrant of the abdomen. There was no evidence of icterus. The laboratory findings, including liver profile and red cell fragility studies, were negative. A cholecystogram revealed nonopaque calculi in the gallbladder; a phrygian cap was present. On Aug. 19, 1948, cholecystectomy and choledochostomy were done. The gallbladder was not acutely inflamed; the wall was blue-gray and slightly thickened. Within the lumen several small stones could be palpated. The hepatoduodenal ligament was acutely inflamed. The common duct was dilated and contained two small mulberry or bilirubin pigment stones. A T-tube was inserted into the common duct. The pathologic diagnosis was chronic cholecystitis with cholelithiasis. The T-tube was removed on the 13th postoperative day, and the patient was then discharged from the hospital. Follow-up visits for two years showed her to be in excellent health.

COMMENT

This case, with its proved pathologic findings, is a fair example of cholecystitis in childhood. It should be noted, however, that common duct stone is an unusual complication, occurring in only 6% of all cases reported. The patient gave a history of jaundice. As in many other cases, the condition was at first diagnosed as infectious hepatitis; the correct diagnosis was made preoperatively. Her symptoms began just after her menarche, when she was 12 years old. Twenty to 30% of the patients in the reported cases were in the 12 to 15 year age group.

In reviewing the literature we found that many cases reported as cholecystitis were not proved. We were able to accept 296 of the cases before 1937 as proved primary cholecystitis in childhood. In the available literature of the following decade we found 30 more cases. Of the

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From the Department of Surgery, The Hahnemann Medical College and Hospital of Philadelphia.

[1] Ulin, A. W.; Nosal, J. L., and Martin, W. L.: Cholecystitis in Childhood and Early Adolescence, to be published

[2] Gibson, J., cited by Snyder, [illegible] C.: Cholecystitis and Cholelithiasis in Young Children, J. A. M. A. 85:31 (July [illegible] 1925.

of the prone subject, who is placed with the face turned to one side and resting on the back of one hand. The other hand is extended above his head. The operator then places his hands over the floating ribs, with the fingers together and directed laterally. He exerts steady pressure downward and toward the subject's head for approximately two seconds, followed by a release and pause for three seconds. This pressure moves the viscera against the diaphragm and compresses the lower part of the back, resulting in active expiration. Inspiration is passive with release of pressure. The cycling rate is maintained at 12 to 15 times per minute.

Arm Lift-Chest Pressure (Silvester).—Proposed almost a century ago, this method [7] has more successfully weathered the adversities of time and testing than any other manual technique. The victim is placed in the supine position with the arms folded on the chest. The operator kneels at the head of the victim. He grasps the arms just above the wrists and draws them first upward and then above the head until they touch the ground. Stretching of the pectoral muscles and humerothoracic attachments produces active inspiration with this maneuver. The operator then replaces the arms on the chest and exerts pressure almost vertically downward to produce active expiration. Each complete cycle is carried out 12 times per minute. Great care must be exercised to prevent the tongue from occluding the oropharynx and preventing ventilation.

Arm Lift-Back Pressure (Nielsen).—The Danish Nielsen method [8] has been used successfully during the past 20 years in the Scandinavian countries. The victim is placed in the prone position with the arms folded and the hands placed on top of each other. The face is then placed on the hands. The operator kneels on either knee at the victim's head and places his hands under the arms just above the elbows. He lifts them upward at the same time that he rocks backward, drawing the arms toward himself until he meets firm resistance. They are then replaced on the floor, and the operator moves his hands to the midback (just below the scapulas) and rocks forward, exerting pressure almost vertically downward to cause active expiration (Fig. 6). The expiratory phase may be used to start the method, if desired. The complete maneuver is repeated 12 times per minute. When the arms are drawn upward, active inspiration results from several mechanisms: (*a*) The weight of the body is from the chest so that the thorax can expand. (*b*) pectoral musculature is stretched, tending to increase intercostal spaces and enlarge the thorax. (*c*) Wh shoulders are raised, the spine is placed in slight h extension, which further tends to increase inter spaces. With the exertion of pressure on the mid active expiration results.

Hip Lift.—This method [9] of producing active ins tion by rhythmical lifting of the hips was repropose promoted by Emerson in 1948, although it had previously investigated by Thompson.[10] The victi placed in the prone position as for the Schafer met The operator kneels on one knee at the level of the straddling the victim and placing the other foot the opposite hip. He places his hands under the hips the anterior superior iliac spines) and raises the p vertically upward 4 to 6 inches. The hips are then placed on the ground, and the cycle is repeated. In t tests the hip lift was performed at 12 times per min Lifting of the hips produces active inspiration a result of several mechanisms: (*a*) When the hips

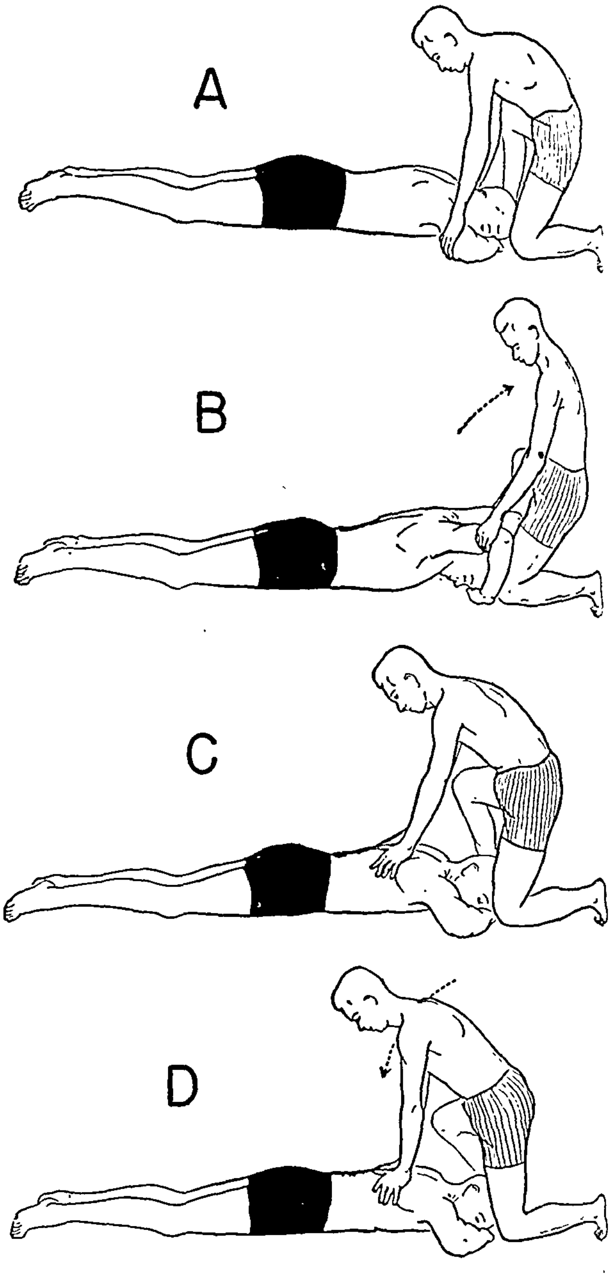

Fig. 3.—Arm lift-back pressure method of manual artificial resp (after Holger Nielsen). *A*, placing hands for arm lift. *B*, arm li placing hands for back pressure. *D*, back pressure.

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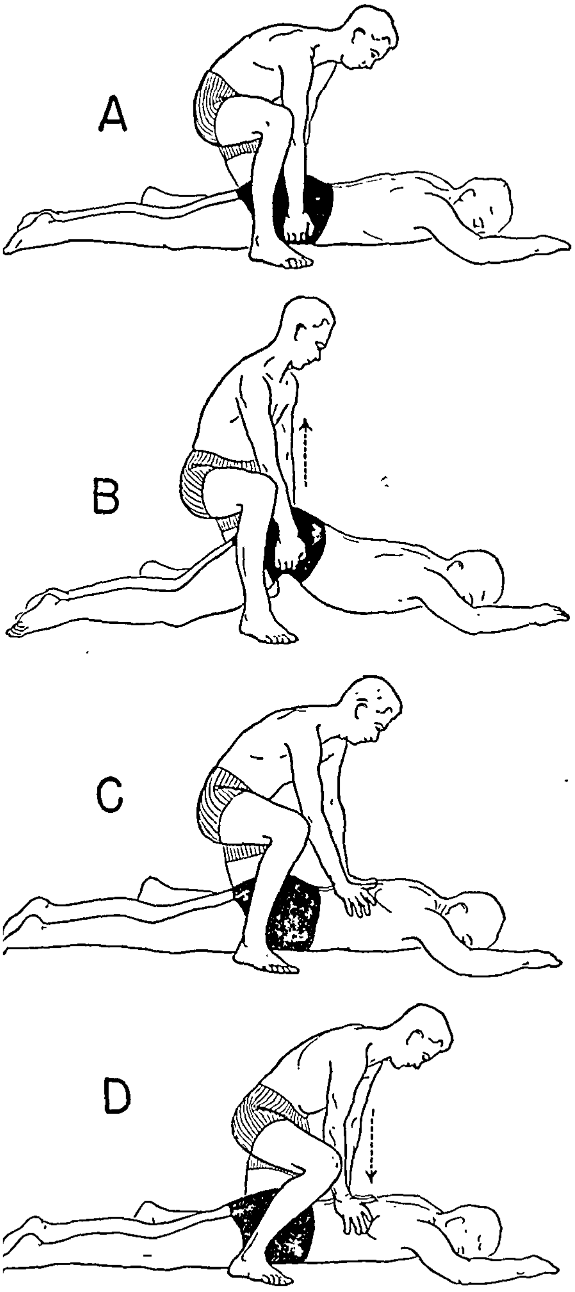
7. Silvester, H. R.: A New Method of Resuscitating Still-Born Children and of Restoring Persons Apparently Dead or Drowned, Brit. M. J. **2**: 576 (July 17) 1858.

8. Nielsen, H.: Method of Resuscitation, Ugesk. f. laeger **94**: 1201 (Dec. 15) 1932. Lindhard, J.: *Artificial Respiration According to Nielsen Method*, Ugesk. f. laeger **96**: 67 (Jan. 18) 1934. Gentles, H. W.: A New Method of Artificial Respiration, Nat. Safety News **32**: 34 (Aug.) 1935. MacLachlan, W.: The Holger Nielsen Method of Resuscitation, Nat. Safety News **32**: 52 (Sept.) 1935. Drinker, C. K., and Shaw, L. A.: Modification of Nielsen Method of Artificial Respiration, J. Indust Hyg. & Toxicol. **17**: 243 (Nov.) 1935. Sillevaerts, C.: Principal Procedures in Artificial Respiration, Bruxelles-méd. **15**: 131, 1934. Manual of Artificial Respiration, Danish Red Cross, Holger Nielsen Committee, Hellerup, Otto Teller, 1947. Hederer, C.: Sur une nouvelle manoeuvre de respiration artificielle combinée avec la méthode de Schaefer pour en corriger les défauts et en augmenter la valeur physiologique, Bull Acad. de méd. **113**: 632 (May 14) 1935. Hederer, C.: Technique de la méthode de Schaefer avec manoeuvre inspiratoire de Hederer, Bull. Acad. de méd. **114**: 178 (July 30) 1935. Hederer, C.: Sur une nouvelle manoeuvre de respiration artificielle combinée avec la méthode de Schaefer pour en corriger les défauts et en augmenter la valeur physiologique, Arch. de méd. et pharm. nav. **125**: 371, 1935.

9. Emerson, J. H.: A Manual Method of Artificial Respiration by Lifting the Hips, Cambridge, Mass., Emerson, 1948 and 1949.

10. Thompson, T. C.: Method of Artificial Respiration Especially Useful for Paralyzed Patients, J. A. M. A. **104**: 307 (Jan. 26) 1935.

ated, the abdominal contents sag downward toward floor; this results in an intra-abdominal negativity tends to draw the diaphragm downward. (*b*) Be- e of the ligamentous attachments between the viscera diaphragm, the downward movement of the abdomi- organs is followed by a similar action of the dia- gm. (*c*) Elevating the hips hyperextends the spine d increases the intercostal spaces of the lower ribs. hittenberger, Affeldt, and Mead [11] have noted the reased intra-abdominal and intra-thoracic negativity placing recording balloons in the stomach and esopha- s. Gordon and associates confirmed these movements the diaphragm fluoroscopically.[1]



ig. 4.—Hip lift-back pressure method of manual artificial respiration. placing hands for hip lift, *B*, hip lift, *C*, placing hands for back pres- . *D*, back pressure.

Hip Lift-Back Pressure.—The hip lift-back pressure ethod [12] combines alternate lifting of the hips, as described above, with pressure on the midback (just below the scapulas) with the fingers spread and the thumbs about an inch from the spine (Fig. 6). As the operator lifts the hips he rocks backward, and as he exerts back pressure he rocks forward. In each phase he keeps the arms straight, so that the work of lifting and pressing is distributed over the shoulders and back, rather than being imposed primarily on the arms. Active inspiration results from lifting the hips and active expiration from pressure on the midback.

Hip Roll-Back Pressure.—This is a modification [12] of the hip lift-back pressure method in which a roll is substituted for the lift in order to increase the ease of performance. The operator kneels astride the prone subject as described for the hip lift method; instead of lifting both hips, he uses the knee on which he is kneeling as a fulcrum on which to roll the victim. The operator keeps his arms straight and rolls himself in the same direction in which he rolls the victim. Great care must be exercised to insure that the victim is rolled up onto the operator's knee or thigh so that both hips are raised from the ground.

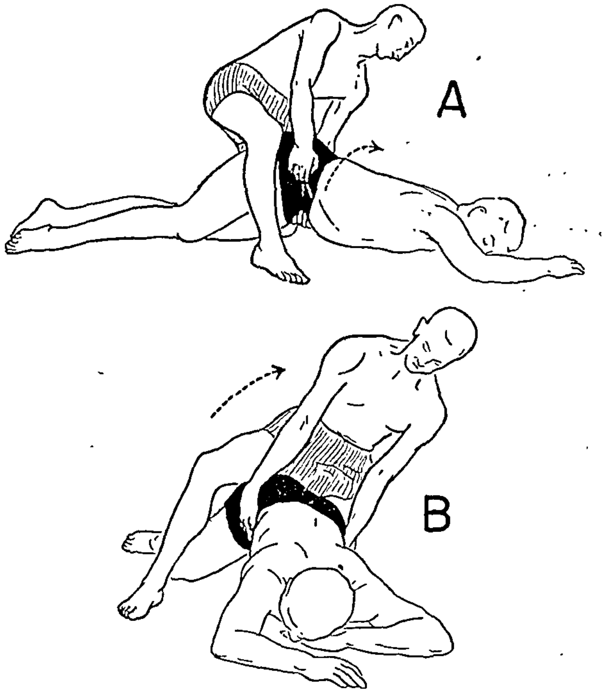


Fig. 5.—Hip roll-back pressure method of manual artificial respiration. *A*, side view of hip roll. *B*, front view of hip roll.

PULMONARY VENTILATION

The classical method of determining tidal ventilation is by the use of spirometric measurements. Although the distribution of ventilation in the lung and the effects of the methods on circulation are important considerations, the tidal volume still retains its value and is one of the simplest tests to make in comparative studies. In investigations of this nature, a number of methods must be applied to each subject since relative values between the methods are more important than absolute values.

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[11] Whittenberger, J. L.; Affeldt, J., and Mead, J.: Dynamic Pulmonary Pressure Volume Relationship During Manual Artificial Respiration, to be published.

[12] Gordon, Fainer, and Ivy.[3] Gordon, Raymon, Sadove, and Ivy.[4]

Schafer prone pressure method in both sexes. Hip lift-back pressure was not performed, but, if calculated arbitrarily by adding the hip lift and the Schafer methods, it would have exceeded all others. The differences among the other four methods were not statistically significant, although the hip roll-back pressure method gave the greatest mean ventilation in both series. It was noted that pulmonary ventilation increased with an increase in the subject's body weight.

CIRCULATORY PHENOMENA AND GAS EXCHANGE

Whittenberger and Affeldt[18] have shown in dogs that with reduction in lung volume below normal there is relatively poor distribution of ventilation of the lung, resulting in a high degree of shunt of blood through underventilated areas. This would necessarily lead to faulty gas exchange and reduced arterial oxygen saturation. Distribution of ventilation is not improved by distending the lung above the normal range. It appears then that the most desirable range in which to ventilate a paralyzed chest is in the direction of increasing lung volume rather than diminishing lung volume—the latter being the case in the Schafer method.

TABLE 2.—*Mean Arterial Oxygen Saturation During Fifteen Minutes of Uninterrupted Manual Artificial Respiration on Fifteen Normal Healthy Adult Males Rendered Totally Apneic with Barbiturate-Curare Mixtures**

Method †	Mean Arterial Oxygen Saturation, %
Prone pressure (Schafer) ‡	67
Arm lift-back pressure (Nielsen)	93
Hip roll-back pressure	94
Hip lift-back pressure	89

* Arterial blood samples drawn during 7th and 15th minutes.

† Total of 15 cases used in which comparative data of several methods are available. Number of cases in which each method was used: Schafer, 9; arm lift-back pressure, 11; hip roll-back pressure, 4; and hip lift-back pressure, 9.

‡ In three out of nine cases in which the Schafer method was applied, it was so ineffectual that it was necessary to stop the method after several minutes in order to assure the patient's safety. In every case in which the Schafer method had to be discontinued, the push-pull method immediately preceding it and the one immediately following it were completely successful for the full 15-minute experimental period.

In addition, one may infer that those methods which produce active inspiration by increasing the intrathoracic negativity would have a beneficial effect on the circulatory system—especially a failing circulatory system—since they would probably promote cardiac refill. It might further be supposed that, since the pressure phase of the Schafer method occupies 40% of the total cycle (2 out of 5 seconds), it would tend to impede venous return as compared with the push-pull methods, in which the pressure phase occupies only 25% of the cycle.

Gordon[19] and associates[20] attempted to evaluate these considerations in studies on 15 normal healthy men curarized-anesthetized to total apnea. Three of the
four prone methods were applied for 15 minutes ea
all the subjects, always by the same operator. Expir
was collected in a Tissot spirometer from the 7th t
10th minute and from the 12th to the 15th minute.
ing these collection periods, arterial blood was d
from the femoral artery and mixed venous blood
a catheter previously inserted into the pulmonary a

The calculated cardiac outputs with all the m
covered a wide range, with the mean values ele
slightly above normal. The range and mean were ap
mately the same for all methods. This was appa
due to the fact that in these studies the cardiova
systems were normal and that the subjects wer
under the influence of heavy medication. Table 2 re
however, that the mean arterial oxygen saturatio
depressed from the normal in all methods. The ar
back pressure, hip lift-back pressure, and hip rol
pressure methods all maintained the arterial o
saturation at near normal levels, and there was no
cant difference among these methods. However, th
arterial oxygen saturation in nine cases in whi
Schafer method was applied was only 67%. In t
the nine cases in which Schafer back pressure wa
the method had to be stopped after several m
because of the profound cyanosis of the subjects.
of these subjects, from whom a blood specime
drawn before the method was discontinued, the
saturation was only 42%. An even more crucia
here is that, in every case in which Schafer back
was found to be inadequate and was stopped, th
pull method that immediately preceded it and t
that immediately followed it were able adequa
maintain the victim for the full 15-minute exp
period.

Pulmonary ventilation with the Schafer method
a normal level in these tests, averaging 6 and
per minute. Assuming that no alteration of the a
barrier existed during the application of the
method, and since the circulatory status of these p
had been shown not to be depressed, uneven a
ventilation appears to be the most probable caus
depressed arterial oxygen saturation. This is a
to the patient's breathing entirely within the
reserve volume with the Schafer method, and is i
plete agreement with Whittenberger's earlier w
dogs.

OPTIMAL TIMING OF THE CYCLES

In a coordinated study between the Harvard a
nois groups,[14] 10 normal healthy men, curarize
thetized to total apnea, were used to measure
flow patterns on the photographically recording p
tachograph.[21] Each phase of the respiratory cyc
the arm lift-back pressure, hip lift-back pressure,
roll-back pressure methods was held until air mo
ceased as determined on the pneumotachograph
at the end of each phase there is a comparativel
movement of air with a very small increment in
their duration may be calculated on the basis of m
ment of the termination of each phase to a more
arbitrary point that includes at least 95% of the
The active phases (hip lift, hip roll, arm lift, an
pressure) for all methods in this study were sh

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18. Whittenberger, J. L., and Affeldt, J. E.: Aspects of Pulmonary Physiology Which Determine the Effectiveness of Artificial Respiration Procedures, Conference on Artificial Respiration, Sept., 1950, Medical Division Special Report No. 5, Chemical Corps, Army Chemical Center, Maryland, April, 1951; pp. 39-49.

19. Gordon, A. S.; Prec, O.; Sadove. M. S.; Wedell, H.; Raymon, F.; Nelson, J. T., and Ivy, A. C.: Circulatory Studies During Artificial Respiration on Apneic Normal Adults, J. Appl. Physiol. 4: 403-495 (Dec.) 1951.

20. Dr. Oldrich Prec, formerly cardiophysiologist, and Dr. Harold Wedell, formerly research fellow, Hektoen Institute for Medical Research, Cook County Hospital, participated in this series of studies.

21. Silverman, L., and Whittenberger, J. L.: Methods in Medical Research, Chicago, Yearbook Publishers, 1950, vol. 2, p. 104.

ire approximately 1½ seconds for cessation of air . These active phases produce the end-inspiratory end-expiratory lung volumes and thus account for tidal volumes obtained. With release, air begins to in the opposite direction during the passive phases; since the next active phase is in the same direction his passive flow, it will accelerate the return of air. important consideration in timing, then, is that the t step, which is an active one, should be held long ugh for air flow to stop, but it does not matter in passive phases.

rom a purely practical point of view, the smooth ormance of the methods dictates approximately the e time requirement for completion of the release ıeuvers as for the hip lift, hip roll, arm lift, or back ssure manipulations. Accordingly, a 5 to 6 second le, executed 10 to 12 times per minute, with each of four phases occupying approximately 1½ seconds, ears physiologically and practically most ideal for the h-pull methods.

omroe[15] feels that these statements may be applic- to normal subjects with drug-induced apnea, but not necessarily apply to victims who actually require ficial respiration. A patient in need of artificial res- ıtion has usually been apneic for a few minutes, has h arterial carbon dioxide and low oxygen levels l is in need of hyperventilation, at least for a short e. Furthermore, if an error in ventilation is made, it ms advisable to him to err in the direction of hyper- tilation. Since the tidal volumes in his series of cases which there was actual pathology were much lower n the curarized normal subjects in the Illinois study, ıte even in excess of 10 to 12 times per minute would dly produce hyperventilation.

y the use of a rapid kymograph which allowed the ording of accurate measurements of the times re- red for each phase, he also noted that the last 3% 4% of the volume required an inordinately long time l that a more rapid cycling should eliminate periods low flow or no flow and so increase alveolar ventila- n. Accordingly, he believes that in actual apneic pa- nts a frequency of 15 or more per minute should be d.

ENERGY EXPENDITURE OF OPERATORS

The oxygen consumption per unit of time is probably most acceptable method for determining general ergy expenditure for a given task. It was used by rpovich and Hale at Springfield College.[17] In their ting, 10 males performed all the methods for three nutes on each of four conscious male subjects cover- a wide range of body weights. Ten female operators re studied while similarly performing on each of four nscious female victims. After each method the recov- y period varied from three to nine minutes, until the tabolic rate had returned to normal.

Their conclusions were the same for both male and male victims with few exceptions. During this three- nute performance period, Schafer prone pressure was und to require the least oxygen consumption; hip roll- ck pressure and hip lift (alone) required the most. ie Silvester and arm lift-back pressure methods occu- d an intermediary position, although less oxygen was nsumed in performance of the Silvester method.

Since conscious subjects may actively assist or resist manual resuscitative efforts, especially when these are extended over a prolonged period of time and become uncomfortable, the University of Illinois group[22] investigated fatigue while working on anesthetized subjects. In these tests, three subjects were anesthetized with ultrashort-acting barbiturates and kept asleep during the procedure by the use of a continuous intravenous infusion of the drugs. Curare was not used in this series, since measurements were not made on the subjects; only the expired air of the operators was collected. Each of nine operators (seven male and two female) of average size performed all the manual methods for an uninterrupted 10-minute period on one of the anesthetized subjects. The subjects were all of the same age, size, and weight, so that results among the various operators were comparable. Between each 10-minute performance period, and before beginning the next method, each operator rested 30 minutes. The methods were rotated in the order of their performance. Expired air was collected from the eighth through the tenth minute, so that the oxygen consumption during the last three minutes of the 10-minute performance period could be measured. A 10-minute period was arbitrarily selected, since this was considered to be a "reasonable" period for manual artificial respiration.

TABLE 3.—*Energy Expenditure of Operators as Measured by Oxygen Consumption During Uninterrupted Performance of Various Manual Methods of Artificial Respiration by Two Different Research Groups*

	Oxygen Consumption (Cc./Min.)		
	University of Illinois* Expired Air Collected During 8th to 10th Min.	Springfield College† Expired Air Collected During 1st 3 Min.	
Method	Mean of 7 Male and 2 Female Operators Working on 3 Anesthetized Subjects	Mean of 10 Male Operators Working on 4 Conscious Male Subjects	Mean of 10 Female Operators Working on 4 Conscious Female Subjects
Prone pressure (Schafer).....	873	547	445
Arm lift-chest pressure (Silvester)	1,162	706	480
Arm lift-back pressure (Nielsen)	1,165	948	657
Hip roll-back pressure........	1,377	1,047	746
Hip lift	.....	1,050	706
Hip lift-back pressure.........	1,625	.....	...

* Each operator performed all manual methods on one of the three anesthetized-subjects uninterruptedly for 10 minutes per method; 30 minutes rest period was observed between methods. All subjects were male, ages 21 to 30; height 68 to 70 in.; weight 148 to 158 lb. Male operators ranged in age from 20 to 34 years and in weight from 165 to 191 lb.; two females were 25 and 29 years and weighed 126 and 128 lb. Results from the individual operators paralleled group results. Oxygen consumption by two females was lower throughout, but relative values of the methods were the same as for the over-all group.

† Each method applied by 10 male operators on each of four conscious male victims and by 10 female operators on each of four conscious female victims. Methods applied for three minutes, allowing recovery period of from three to nine minutes, until the metabolism returned to normal. Male operators: ages 15 to 25; weight 110 to 230 lb.; female operators: ages 13 to 28 years; weight 105 to 168 lb.; male victims: 106 to 230 lb. and 65 to 73 in. tall; female victims: 90 to 165 lb. and 60 to 67 in. tall.

The data in Table 3 reveal that the energy cost of the methods fell roughly into three groups: Schafer was the least taxing, hip lift-back pressure required the greatest expenditure, and Silvester and arm lift-back pressure occupied an intermediary position. The hip roll-back pressure method occupied a position between the arm

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22. Gordon, A. S.; Raymon, F.; Sadove, M. S.; Wedell, H., and Ivy, A. C.: Energy Expenditure of Operators During Manual Artificial Respiration, J. Appl. Physiol. 4:403-495 (Dec.) 1951.

lift-back pressure and the hip lift-back pressure methods. This trend was maintained by the individual operators, groups of operators, and the entire group. These results also correspond with the subjective feelings of fatigue of the operators. All the operators felt that the Schafer method was the easiest, and all except two considered the hip lift-back pressure most fatiguing. In all but these two, the arm lift-back pressure and the Silvester methods always occupied intermediary positions in their judgment of fatigue resulting from the 10-minute performances.

PEDAGOGICAL AND PERFORMANCE FACTORS

The practical application of new methods of resuscitation is dependent on factors other than those compiled in physiologic experiments. Assessments of the degree of difficulty in teaching, the accuracy of performance, and the discomforts experienced are essential. The groups at Illinois and at Springfield College investigated these factors.

The study by Karpovich[17] was carried out with 100 boys from Wilbraham Academy and 67 young men from Springfield College. The students were divided into small groups, and each group was given instruction separately in one session. During another session they were required to execute each method for 10 to 15 minutes. The order of performance of the methods was selected at random, with the exception of the hip lift, which was always given last.

The information furnished by these tests indicated that the methods considered easiest to learn were the arm lift-back pressure and arm lift-chest pressure methods. The hip lift was considered the most difficult. Exclusive of the Schafer method, these same two methods were considered least tiring and the hip lift most tiring. Most operators complained of discomfort in the knees in all methods and of discomfort in the back in the hip lift method.

With the cooperation of the National Opinion Research Center, who prepared and analyzed unbiased questionnaires, the University of Illinois[23] conducted tests on 1,000 naval recruits and 200 Waves at the Great Lakes Naval Training Center. Groups of naval personnel were given 10-minute lecture-demonstrations in the performance of the arm lift-back pressure, hip lift-back pressure, and hip roll-back pressure methods. After the lecture-demonstration of each method, selected at random in order to eliminate the factor of the learning of one method influencing the learning of a second method, recruits were called on to perform the method continuously for a 10-minute period. A random selection of operators and victims was utilized so that various sizes and weights would be paired. The victims were never used as operators, since their performance or judgment might have been influenced by having had the methods performed on them. Operators always performed the several methods on the same subjects. Trained monitors observed, corrected, and rated the operators on their performances; the operators rated the methods at the conclusion of each set of tests.

Observations and ratings of these performanc
vealed that the arm lift-back pressure, hip lift-back p
sure, and hip roll-back pressure methods can be succ
fully taught to naval recruits in relatively brief tra
sessions as used in these tests. Of these methods, th
lift-back pressure method surpassed all variations o
hip methods in accuracy of performance, ease of lea
—as measured by the need for an amount of correcti
and physical ease of performance. Among the hip m
ods, the hip lift-back pressure, especially when an adj
is used (such as a towel or belt under the hips to a
in lifting) in its performance, is most easily learned
accurately performed. It is, however, physically
difficult to do than the hip rolls. The hip roll-back
sure is not as accurately performed, especially in g
both hips clear of the ground, and with continued
formance is frequently done clumsily and with diffi
All operators were able to complete the 10-minute
formance period with each of the methods.

CONCLUSIONS

On the basis of all of the component parts of
studies, it may be said unequivocally that of the me
of artificial respiration investigated the Schafer
pressure method is the least effective for ventilatin
lungs. This in no way disputes the evidence tha
method has accounted for a large number of succ
resuscitations. It means, rather, that, on sound p
logic principles, there are manual methods availab
give greater ventilation and would most probably
resulted in an even greater number of successful re
The Schafer method is easy to teach and can b
formed for extended periods of time. Herein lie the
advantages that have promoted the method to its p
position of almost universal teaching in this count

Since it is apparent that prone pressure should
placed by one of the more efficient methods, the
immediate problem is selection of the push-pull m
that should be substituted for it. The various pus
methods have all proved their ability to resuscitat
sons actually requiring artificial respiration. Duri
past century, the Silvester method has had innum
successes attributed to it. The arm lift-back p
(used as the Holger Nielsen method) has been in p
for almost 20 years in the Scandinavian countri
has attained an excellent record there.

We know of six authenticated cases in which t
lift-back pressure method has been successfully ap
In each of these cases the Schafer method was orig
used and, when it appeared to be ineffectual, the h
back pressure method was tried. These cases were
lows: (*a*) the original case reported by Thomp
1932, in which the method was used to maintain a
myelitis victim for eight hours, until a mechanical re
tator became available; (*b*) three submersion case
ing the past year, all involving children—one in F
one in Chicago, and one in the Philippine Islands;
barbiturate intoxication patient in Boston who s
poor response with the Schafer method but wh
maintained with hip lift-back pressure; and (*d*) a
in Washington, D. C., who was successfully resusc
after being struck by lightning.

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[23] Gordon, A. S.; Star, S.; Meier, F.; Hale, C., and Ivy, A. C.: Pedagogical and Performance Factors of Manual Artificial Respiration with Naval Personnel, J. Appl. Physiol. 4: 403-495 (Dec.) 1951.

Of the various candidate push-pull methods, the Sil- ter method retains its usefulness for particular in- nces but has one strong disadvantage which limits general applicability. When the victim is in the supine ition, the tongue frequently occludes the oropharynx d effectively limits or prevents ventilation. In the study warm corpses by Gordon and associates,[3] where the and tongue were allowed to fall freely into their nat- l position, in 50% of the cases in which the Silvester thods was applied there was no ventilation. By con- st, only 25% of the Schafer and hip lift subjects had ventilation and all of the arm lift-back pressure and lift-back pressure subjects were ventilated. When a ond rescuer is available and cognizant of this danger, airway can be kept clear by drawing out and securing tongue or elevating the jaw. This method is valuable cases in which the supine position is advisable (preg- ncy or burns or injuries to the anterior surface of the ly) or when a victim has been trapped in the supine ition.

The hip lift-back pressure method uniformly gives the atest ventilation in all the studies, and teaching which ures accurate performance is easy. However, it is icult, except for able-bodied men and women, to con- ue for long periods of time. In these tests young adults re able to complete 10-minute performance periods h the method. Children or small adults may find it possible to accomplish the hip-lifting technique. The roll-back pressure method requires less energy but is re complicated, and accurate performance requires ater indoctrination. With prolonged usage it is fre- ently performed clumsily.

The arm lift-back pressure method gives ventilatory umes that are double those of the Schafer method. has been shown to be easy to teach and is usually formed accurately after brief indoctrination periods. can be performed with relative ease by small adults d even children who are old enough to understand method and its application. The method can be ntinued for long periods of time without exhaustion, contrast to the various hip methods. In cases of injury the arm, or if a small operator becomes unduly fa- ued, back pressure alone may be used and gives greater ntilation than standard prone pressure over the floating s.

Although the arm lift-back pressure method is most plicable for general usage, medical personnel and other ined persons should be accomplished in the applica- n of other methods, including the hip lift-back pressure d arm lift-chest pressure methods. These provide ready ernatives when particular circumstances preclude the e of the arms or the legs, or when it is essential that the ctim be in either the prone or the supine position. When ssible, the hip lift-back pressure method should be ed, since its ventilatory efficiency, even in cases with thological processes, is of proved superiority.

A rate of 12 times per minute seems ideal for the appli- tion of the push-pull methods. Accurate determinations air-flow have shown that this timing most adequately ilizes the time allowed for each phase. Furthermore, sting of naval personnel indicated that the methods uld be continued at this rate for full 10-minute periods. It was easy for recruits to establish and maintain the rate of 12 times per minute. When errors in rate and rhythm were noted, they were in the direction of slowing the maneuvers (probably owing to fatigue) rather than accelerating them. The Shafer prone pressure method has also been taught at a rate of 12 per minute, and the use of this same rate will probably facilitate the teaching of new methods.

However, the observation of Comroe must be considered, namely, in his patients who had pathological processes actually requiring artificial respiration, lower tidal volumes were obtained than in normal subjects with drug-induced apnea. Because the victim requiring resuscitation has hypercapnia and hypoxia, any error in the amount of ventilation should be in the direction of hyperventilation. Accordingly, for this type of patient a rate of 15 times per minute may be more applicable.

The purpose of artificial respiration is to draw air into the lungs, rather than to force air out. It would seem most advantageous, therefore, to begin the push-pull methods with the active inspiratory phase. However, since resuscitation exigencies are often associated with obstruction of the airway, it may be more practical in the final analysis to begin artificial respiration with the pressure phase. The methods would then become: back pressure-hip lift, back pressure-hip roll, back pressure-arm lift, and chest pressure-arm lift. In actual practice the time lag between starting with active inspiration or active expiration is so small that it should not prove to be of significance.

RECOMMENDATIONS

1. As soon as is compatible with the pedagogical factors involved, the Schafer prone pressure method of manual artificial respiration should be replaced by one of the more efficient push-pull methods.
2. Of the push-pull methods, the arm lift-back pressure method (which, if begun with active expiration, may be more appropriately termed back pressure-arm lift), slightly modified from the original Holger Nielsen method, is preferable for general indoctrination.
3. Other push-pull methods that are acceptable, and are specifically applicable in special circumstances, include the hip lift-back pressure and the Silvester method (arm lift-chest pressure) methods.

Congenital Defects.—It has been emphasized by numerous workers that biological characteristics, including responses to experimental manipulation, are the result of an interaction between the genetic and the past environmental influences which make up the organism's constitution. Some characteristics are determined largely by genetic factors and others by environmental agents, while still others occupy an intermediate position. The fact that no one has been able to produce defects experimentally in 100% of the offspring of treated animals, even when using highly inbred material, shows that the production of such defects is influenced by environmental differences sufficiently subtle that they can occur within the maternal uterus. It is reasonable to suppose that this applies in human material as well. Clinically, therefore, the etiology of any given case of congenital defect (provided there is no obvious Mendelian pattern or environmental agent) must be attributed to a complicated interaction of genetic and environmental factors that can be defined *only in statistical terms.*—F. Clarke Fraser, M.D., and T. D. Fainstat, M.Sc., Causes of Congenital Defects, *A. M. A. American Journal of Diseases of Children*, November, 1951.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

The Council on Physical Medicine and Rehabilitation and The American National Red Cross have adopted the following statement. The Council and The American National Red Cross will welcome comments.

Ralph E. De Forest, M.D., *Secretary*,
Council on Physical Medicine and Rehabilitation.
Carl J. Potthoff, M.D.,
The American National Red Cross.

BACK PRESSURE-ARM LIFT METHOD FOR ADMINISTERING ARTIFICIAL RESPIRATION RECOMMENDED

The Council on Physical Medicine and Rehabilitation of the American Medical Association and The American National Red Cross and many other organizations, including the Armed Forces, the Federal Civil Defense Administration, the Public Health Service, the Bureau of Mines, the Boy Scouts and Girl Scouts of America, and the American Telephone and Telegraph Company, have endorsed the back pressure-arm lift method of artificial respiration for use by the general public when dealing with cases of asphyxia. The teaching and use of selected other methods may be indicated for special situations, but it is expected that the back pressure-arm lift method will supplant the prone pressure as the one most generally indicated. This endorsement follows a recommendation released December 3 by The American National Red Cross, National Research Council, Department of Defense, and Public Health Service.

TECHNIQUE OF THE BACK PRESSURE-ARM LIFT METHOD

The subject is placed prone, elbows bent, arms overhead with one hand upon the other. The cheek is placed on the hand, the face turned slightly to one side. The operator kneels on one knee the head of the subject and puts the foot of the opposite leg r the elbow. He places his hands on the subject's back, in h a way that the thumbs just touch, the heels of the hands eing just below a line running between the armpits. He rocks slowly forward, elbows straight, until his arms are approximately vertical, exerting steady pressure upon the chest. Then he commences to rock backward slowly and slides his hands to the subject's arms just above the elbows. He raises the arms until resistance and tension are felt at the subject's shoulders. Then he drops the arms. This completes a full cycle. The cycles are repeated 12 times per minute, the expansion and compression phases being of equal length, the release periods being of minimum duration. A standard technique for administering the method is being prepared by a committee representing many organizations.

EVIDENCE SUPPORTING THE ADOPTION OF THE BACK PRESSURE-ARM LIFT METHOD

During recent years a growing mass of evidence has indicated that several methods of approximately equal merit in meeting physiological needs are superior to the prone pressure method, and that among them the back pressure-arm lift method best meets the requirements for general public use.

A large share of the work definitely comparing methods has been recent. Studies of air exchange induced by artificial respiration have been made (1) on experimental animals, volunteers holding the breath, (3) on cadavers, (4) on sick jured persons who have stopped breathing, and (5) on who have been given barbiturates with curare, or other thetics, to stop breathing completely. Studies of other asp respiratory mechanics and physiology, blood and circulatio tissue changes have been made. Thus an extensive literatu been compiled since the prone pressure method was ad

It might be assumed that one method or another has a tage related to the circulation and thus indirectly upon t tissue, particularly nerve tissue such as the central nervou tem. Such evidence theoretically might occur because pres changes in the thorax aid the flow of blood or because the cedures mechanically stimulate the heart. The findings of vestigators, however, are that bringing oxygen quickly to alveoli is of overriding importance in maintaining and im ing cardiac action and circulation.

Accordingly, the relative effectiveness of different me appears to depend primarily upon the differences in the am of tidal air they induce. If the victim has been deprived o only briefly, a fairly small amount of air will revive him other factors such as cardiac fibrillation enter. But if his a no longer have oxygen, if his blood oxygen level is low, carbon dioxide level is simultaneously very high, if he the brink of heart failure and/or irrecoverable brain injur to oxygen lack, a large air exchange through artificial re tion is urgently needed. The deeper the asphyxia, the g the need for use of a method of artificial respiration gi large air exchange.

The evidence indicates that the prone pressure method least ventilation when needed most, that is, in the deeply as ated. Comroe[1] writes: "The Schafer method depends to extent on the elastic recoil of the lungs and tonicity in t piratory muscles; since these are absent in the deeply as ated patient, Schafer's method becomes of least value needed most." Further, Drinker[2] has pointed out that and atelectasis of the lungs develop, the degree becoming as time goes on. These conditions occur in the electroc carbon monoxide poisoned as well as in the drowned wh blood pressure falls. At such time, the more effectively tioning parts of the lung should be supplied with good levels and the ventilation should be good enough to keep carbon dioxide levels below undesirably high levels. The pressure method appears to have still another disadvantage ing recoil of the chest with this method, only a slight n pressure develops, particularly in the deeply asphyxiated. A ingly, when the respiratory passageways are partly obs by edema, mucus, vomitus, or drowning fluid, the air will be slower than if a greater negative intrathoracic p develops.

Swann[3] has shown that the failing myocardium (heart recovers quickly when provided with oxygen, if fibrilla not present. On the basis of his extensive studies he has "The desideratum of artificial respiration is a big tidal vol the biggest possible since this will bring more oxygen quickly to the myocardium."

Various studies have indicated that with volunteers their breath the air exchange when using the prone p method significantly exceeds the respiratory dead space space is represented by the passageways of the nose, p and larger respiratory tubes, and amounts in the adult to 150 cc. (about ⅓ pint). Obviously if the exchange is o that amount or less, the fresh air is not brought directl the deeper respiratory tract where it is needed. But eve volunteers holding the breath, the air exchange *is far* using the back pressure-arm lift method than the prone pr The prone pressure method is a one-phase maneuver part of the operator; he actively compresses the chest, b not actively expand it. Two-phase methods—including a where the operator actively expands the chest and one he compresses it—give much more ventilation.

The fresh cadaver perhaps resembles most closely the asphyxiated victim near death. Many workers such as

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Joint statement issued by the Council on Physical Medicine and Rehabilitation and The American National Red Cross.

1. Comroe, J. H., Jr., and Dripps, R. D.: Artificial Respiration, J. A. M. A. 130: 381 (Feb. 16) 1946.
2. Drinker, C. K.: Pulmonary Edema and Inflammation, Cambridge, Mass., Harvard University Press, 1945.
3. Swann, H. G.: Studies in Resuscitation, Armed Forces Technical Report No. 6006 (Oct.) 1950.

Cordier[5] found that the prone pressure method gave ex- nges grossly less than the physiological dead space. Motley[6] ined figures of 78 cc., 50 cc., 140 cc., and 0 cc. in studies 4 cadavers, these volumes being attained only when the sub- s were in optimum positions; with slight variations in position, volumes were even less. Gordon[7] obtained far smaller air ange upon fresh cavaders, using the prone pressure method, he did using the pack pressure-arm lift, the hip lift-back sure, and other two-phase methods.

omroe and Dripps[1] obtained a ventilation of only 71 to 117 n two apneic clinical patients, using the prone pressure.

hittenberger[8] also found that the prone pressure method not give nearly as much ventilation on clinical patients at vard as did the back pressure-arm lift and the hip lift-back sure. Comroe's studies on 13 clinical apneic patients gave lar findings.

ordon and his associates[9] administered barbiturate-curare tures to 26 volunteers, rendering them completely apneic. n various methods of artificial respiration were administered. prone pressure method gave an air exchange average of cc., the back pressure-arm lift 1,056 cc., the hip lift-back sure 1,140, and the Silvester 1,069.

ordon and his associates also measured blood oxygen levels r administering artificial respiration for 15 minutes to these rized subjects. He found that the oxygen level in the blood markedly when the prone pressure method was administered 15 minutes, but that with two-phase methods, the back sure-arm lift method being one of those studied, the oxygen ls remained at about 90% saturation. In several cases when prone pressure was used, cyanosis became so alarming that method had to be discontinued. On substitution with a two- se method, there was recovery from the cyanosis. Comroe, pps, and Whittenberger had similar experiences with regard yanosis in clinically ill, apneic patients. Gordon also found cardiac output was lower when the prone pressure method used than with the two-phase methods studied. The studies mentioned are only a few of those done.

DIFFICULTY OF EXECUTING, AND PRACTICAL EDUCATION FEATURES

seems evident that anyone can satisfy himself concerning ease of doing the back pressure-arm lift method and of ning it. The method probably is not quite as easy to do and each as the prone pressure, but yet is an easy one. A child frail person can administer the method to a heavy person. as been taught and used in Europe, especially in Denmark Norway, for many years. In answer to specific inquiry, the l Cross Societies of those nations state that there have been injuries during administration of the method, either in teach- sessions or in actual resuscitation efforts.

owever, special studies were made in this country by Karpo- [10] and by Gordon[11] and his associates; in addition, informal lies have been made in Red Cross classes, utilizing in some s the services of professional educators and safety engineers. Y. M. C. A. has also included this method among those it hes.

hese studies, in general, show that the prone pressure is easy lo and to learn, and that the back pressure-arm lift is almost easy, can be continued long, and can be done by a child or t person upon a heavy subject. The hip lift-back pressure l the hip roll-back pressure are harder to do, cannot be done at by some upon heavy subjects, and induce fatigue quicker than back pressure-arm lift method.

he back pressure-arm lift method is essentially the Holger- lsen Method.

n the basis of the scientific evidence that the back pressure- lift method satisfies the physiological requirements essen- ly as well as any other studied and has advantages over the ne pressure method, and that it is a feasible one for use under d conditions of asphyxia and for a broad educational pro- m, its adoption for general public use is recommended.

COUNCIL ON FOODS AND NUTRITION

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Beech-Nut Packing Company, Canajoharie, N. Y.

BEECH-NUT STRAINED APRICOT DESSERT WITH TAPIOCA. Ingredients: apricot puree, sugar, tapioca, salt and water sufficient for preparation.

Analysis (submitted by manufacturer).—Total solids 21.74%, moisture 78.26%, ash 0.51%, fat (ether extract) 0.29%, protein (N × 6.25) 0.38%, crude fiber 0.46%, carbohydrate other than crude fiber (by difference) 20.10%.

Vitamins and Minerals	Mg./100 Gm.
Crude carotene	1.5
Thiamine	0.013
Riboflavin	0.023
Nicotinic acid	0.38
Ascorbic acid	0.25
Calcium	21
Phosphorus	16
Iron (total)	0.46
Iron (available)	0.26
Copper	0.40

Calories.—0.85 per gram; 24.1 per ounce.

Use.—For use in the feeding of infants and young children.

H. J. Heinz Company, Pittsburgh.

HEINZ STRAINED ORANGE JUICE FOR BABIES is prepared from Florida oranges. It is processed according to standards adopted by the H. J. Heinz Company. These have been examined and accepted by the Council. The following information was submitted by the company: The juice is finely strained; the peel oil content is maintained at a point below 0.020%; dextrose in small amounts is added for the maintenance of a sugar-acid ratio within specified limits; the product is vacuum packed in 4½ ounce metal containers. The average ascorbic acid (vitamin C) content for the 1951 pack was 51.8 mg. per 100 ml. at the time of packing. The average caloric value is 14 calories per ounce.

M & R Laboratories, Columbus, Ohio.

SIMILAC (LIQUID) comprises partially defatted milk (concentrated by evaporation) with lactose, olive oil, cocoanut oil, corn oil, cocoa butter, fish liver oil concentrate, ascorbic acid, and thiamine.

Analysis (submitted by manufacturer).—Total solids 24.10%, moisture 75.90%, minerals 0.75%, fat 6.80%, protein 3.45%, carbohydrate 13.10%.

Vitamins and Minerals	*Per 100 Gm.*	
Vitamin A	494	U.S.P. Units
Thiamine	0.032	mg.
Riboflavin	0.19	mg.
Ascorbic Acid	9.88	mg.
Vitamin D	79	U.S.P. Units
Calcium	130.00	mg.
Phosphorus	100.00	mg.

Calories.—1.40 per gram; 40 per fluid ounce.

Use.—For use in infant feeding.

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4. Bruns, O.: Uber Wiederbelebung durch kunstliche Atmung, Klin. Wchnschr. **6**: 1548 (Aug. 13) 1927.

5. Cordier, D. G.: Methods of Artificial Respiration, Brit. M. J. **2**: 381 (Sept. 25) 1943.

6. Motley, H. L., and others: Intermittent Positive Pressure Breathing; Means of Administering Artificial Respiration in Man; Council on Physical Medicine, J. A. M. A. **137**: 370 (May 22) 1948.

7. Gordon, A. S.; Fainer, D. C., and Ivy, A. C.: Artificial Respiration, *J. A. M. A. **144**: 1455 (Dec. 23) 1950.*

8. Whittenberger, J. L.: Personal communication.

9. Sadove, M. S.; Gordon, A. S.; Nelson, J. T., and Ivy, A. C.: Barbiturate-Curare-Induced Apnea for Artificial Respiration: Studies on Normal Adults, J. Appl. Physiol., to be published. Gordon, A. S.; Affeldt, J. E.; Sadove, M. S.; Raymon, F.; Whittenberger, J. L., and Ivy, A. C.: Air Flow Patterns and Pulmonary Ventilation During Manual Artificial Respiration on Apneic Normal Adults, J. Appl. Physiol., to be published. Gordon, A. S.; Prece, O.; Sadove, M. S.; Wedell, H. G.; Raymon, F.; Nelson, J. T., and Ivy, A. C.: Circulatory Studies During Artificial Respiration on Apneic Normal Adults, J. Appl. Physiol., to be published.

10. Karpovich, P. V., and others: (1) Energy Expended in Administering Artificial Respiration. (2) Pedagogical and Fatigue Factors Involved in Its Use. (3) Pulmonary Ventilation in Manual Artificial Respiration, J. Appl. Physiol., to be published.

11. Gordon, A. S.; Raymon, F.; Sadove, M. S.; Wedell, H., and Ivy, A. C.: Energy Expenditure of Operators During Manual Artificial Respiration, J. Appl. Physiol., to be published. Gordon, A. S.; Star, S.; Meier, F.; Hale, C., and Ivy, A. C.: Operational and Pedagogical Aspects of Manual Artificial Respiration with Naval Personnel, J. Appl. Physiol., to be published.

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STANDARD NOMENCLATURE OF DISEASES AND OPERATIONS, FOURTH EDITION

On Jan. 2, 1952, the American Medical Association will make available to hospitals the new fourth edition of Standard Nomenclature of Diseases and Operations.[1] Revision of this useful book has been under way intensively for the past three years. It began with the decision to revise made at the Fifth National Conference on Medical Nomenclature, held at the Association Headquarters office in June, 1948. Revision of the book was carried out by the editors under the general supervision of an Editorial Advisory Board and in collaboration with 24 committees representing each of the individual or specialty sections of the book.

Since its inception under the auspices of the New York Academy of Medicine, and the First National Conference on Medical Nomenclature, in 1928, and the subsequent transferral of responsibility for its periodic revision to the American Medical Association in 1937, the "Stand-d Nomenclature" has grown rapidly to become the dard, and thereby the most acceptable, system for diagnostic coding of hospital records for more than per cent of U. S. hospitals. Although the dual topographic-etiologic coding system is not uncomplicated, it has demonstrated many times its flexibility both through ease of simplification for the small hospital and in ready expansibility for the large teaching and research hospital.

Because of the wide acceptance of this coding system and the fact that hospital record systems using "Standard Nomenclature" must make the changes provided for in each revision, the editors of the fourth edition have made every effort to avoid changes that were not strictly required. Nevertheless, the rapidly expanding scientific knowledge in many fields in recent years has required a considerable number of changes in several sections of the book. These include a complete revision of the psychobiologic section to bring it into accord with accepted diagnostic terminology of the American Psychiatric Association, a complete revision of the diseases of the hemic and lymphatic section to accord with newer thought in this field, and a complete revision of the section on tumor etiology. Changes in the nomenclature and coding of tumors were preceded by deliberations of the "Standard" committee on oncology with similar committees of the American Cancer Society, the National Research Co cil, the U. S. National Committee on Health and V Statistics, the American Society of Clinical Patholo the Armed Forces Institute of Pathology, the U. S. P Health Service, and others, all of whom have adopted new nomenclature.

For purposes of a closer identification of two sys the fourth edition has included an appendix cross r ence of "Standard" code numbers to code numbe the "International Statistical Classification of Dise Injuries and Causes of Death." The "International" numbers have also been included parenthetically i nomenclature section of the book. The main purpo this has been to simplify the work of hospitals that ticipate in or contribute toward large-scale state, nat or world statistical studies of disease incidence. It be emphasized, however, that for purposes of ho recording the systems are by no means interchang The "Standard" system, as a clinical system, is nec for the proper separation of individual differences i eases for recording and research purposes, where "International" system applies mainly to much br disease groupings for statistical purposes. Thus, on number in the International list may be used to rep 20 or more conditions classified and coded separa the "Standard Nomenclature."

In view of the fact that the International list is n cepted on a world basis for statistical analyses countries participating in the World Health Organi and the fact that the cross coding to "Standard" ha a tremendously detailed and time-consuming w seems pertinent now to suggest that the combin tems, clinical and statistical, would be an appr consideration for the World Medical Associati sponsorship or adoption in either the present or t edition.

Unquestionably, the adoption of "Standard" hospitals of this country not now using it is necessa can be an effective move toward the unity inhe calling the same things by the same names.

LABORATORY-ACQUIRED INFECTIONS

Sulkin and Pike [1] report data collected on labo acquired infections by means of a questionnair mitted to 5,000 laboratories, including those ass with state and local health departments, accredite pitals, private clinics, schools of medicine and vete science, undergraduate teaching institutions, ma turers of biologicals, and various governmental ag The report includes cases reported in the literature. were 1,342 infections presumably acquired as a of laboratory work. Among these there were 39 fat a rate of 3.0%.

The laboratory-acquired infections included 77 terial, 265 viral, 200 rickettsial, 39 parasitic, and to fungi. Brucellosis, tuberculosis, tularemia, typhoi streptococcic infections accounted for 72% of th terial infections and 31% of all infections. Coccid outnumbered all other fungi as a cause of labo infection, apparently because of the highly infe nature of the chlamydospores.

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[1] Published by the Blakiston Company, Philadelphia.

[1] Sulkin, S. E., and Pike, R. M.: Survey of Laboratory-Acquired Infections, Am. J. Pub. Health 41: 769 (July) 1951.

[he handling of clinical specimens and infected ani-ls or ectoparasites accounted for 175 and 139 cases, pectively. Contamination of air and "work with the ınt" were other frequently recognized sources of lab-tory infection. There were 98 infections acquired in autopsy room. The hypodermic needle and the syringe ounted for the largest number of infections due to ident. Seventy-five per cent of all infections occurred ong trained, scientific personnel, this being the group t is exposed to the greatest risk. Thirteen of the 95 es of hepatitis occurred in dishwashers. Of consider-: importance, the authors emphasize, is the develop-ıt of bacterial hypersensitivity in laboratory workers. : sensitivity may become so pronounced that the ker can no longer engage in this type of work.

Among the prophylactic measures against laboratory ctions, the realization of the dangers and attempts at per techniques play an important part.

ong[2] emphasizes that more attention should be paid, he prophylaxis against tuberculosis, to measures pre-ting contamination of the air. Experimentation has ved that ultraviolet rays have a markedly favorable ct. There does not seem to be a definite attitude with ard to BCG vaccination. Many investigators believe xerts a protective influence; a few think it is harmful. wever, studies on the effect of BCG vaccination in venting infection of medical and nursing personnel e firmly established it as a valuable procedure in tuberculin-negative population of hospitals and tuber-osis sanatoriums. It is urged that, if BCG vaccination ot practiced, tuberculin-negative personnel should be ed with tuberculin periodically. Roentgen examina-ı of all personnel must be carried out at intervals not xceed six months.

The employment of vaccination against some of the ettsiae and passive immunization with hyperimmune ım are mentioned by Smadel[3] as some of the measures e employed. The precautions to be taken naturally y with the type of organism under study.

RCOMA "VACCINE"

According to Lewis and Aptekman[1] of the Wistar titute, Philadelphia, atrophying sarcoma tissue may antigenic and serve to protect the host against growth subsequently implanted viable homologous sarcoma ue. Their experiments were made on young adult rats a strictly inbred strain and a 100% transplantable coma originating in that strain.

Material for their "vaccination" tests was obtained m 10 to 11-day-old sarcoma transplants between the ulders on the backs of rats. These tumors had attained ze of about 50 × 20 × 18 mm. The large blood ves-s that supplied the tumors were located by means of a ght light directed through the skin, and then ligated. e tumors were then drawn into a fold of skin and ured by a clamp; the fold was then sewed off to form ermanent pocket.

Material removed from these pockets two to four days er was of a cherry red color and semisolid consistency. When 0.5 ml. of this atrophying (partially autolyzed) tissue was injected into susceptible rats, a considerable local reaction took place, resulting in the formation of a cyst containing thick turbid material, which was absorbed after 8 to 14 days. This transplanted atrophying sarcoma tissue failed to grow in any of 60 rats thus treated.

Twenty-one to 60 days later the treated rats were challenged by subcutaneous implantations of viable homologous sarcoma tissue. The tumor failed to grow in all 40 rats that had previously received injections of material which had atrophied for three to four days. Serological studies have thus far failed to demonstrate antibodies in the serum of these rats that would account for this acquired sarcoma-immunity.

Experiments in progress suggest that the presence of the infiltrated bloody edema fluid in the atrophying sarcoma tissue may be related to its apparent antigenicity.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

The semiannual listing of postgraduate continuation courses for physicians, covering the period Jan. 1 to July 15, 1952, appears elsewhere in this issue. These data, prepared as a regular service by the Council on Medical Education and Hospitals, list 836 courses varying in length from a few days to several months. Some are concentrated full-time courses and others are part time. There are opportunities for the physician in general practice as well as for the specialist. Opportunities for this form of study during the period cited are available in 33 states and the District of Columbia. The subjects embrace 45 major areas in the field of clinical medicine and the basic sciences. The increasing number of courses available for continuation study for the general practitioner is of particular interest. A series of courses for military personnel at medical installations is also included.

Medical schools, state medical societies, hospitals, state and city boards of health, and special societies continue to be active in developing this type of continuation training.

Eighty-eight agencies are participating in sponsoring the courses in this listing, including 30 medical schools, 13 hospitals, 10 graduate schools of medicine, 12 special societies, 7 state chapters of the American Academy of General Practice, 4 state medical societies, 4 county medical societies, 4 governmental agencies, 2 health departments, and 2 schools of public health.

The Council endeavors to make this listing as complete as possible. Institutions and organizations whose courses are not included in the present list are invited to furnish the Council with details pertaining to the opportunities that they have developed for continuation study by physicians.

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[2] Long, E. R.: The Hazard of Acquiring Tuberculosis in the Laboratory, Am. J. Pub. Health 41: 782 (July) 1951.

[3] Smadel, J. E.: The Hazard of Acquiring Virus and Rickettsial Diseases in the Laboratory, Am. J. Pub. Health 41: 788 (July) 1951.

[1] Lewis, M. R., and Aptekman, P. M.: Antigenicity of Sarcomata Undergoing Atrophy in Rats, J. Immunol. 67: 193 (Sept.) 1951.

MEDICAL NEWS

CALIFORNIA

Tuberculosis in San Francisco School Children.—A steady decline has occurred in the number of San Francisco children of school age with tuberculosis since intensive case finding was begun in October, 1932. Correspondingly there has been a great decrease in the number exposed as evidenced by the tuberculin test. In 1932 there were 43% positive reactors in the school age group; in 1950 this had decreased to 10%. The decrease in actual cases reached an all time low of 67 in 1950. The Chinese continue to have the highest rate of the nonwhite group, 20.9%. The white population is about seven or eight times that of the nonwhite, but only 49% of the cases were among white children. About 47%, nearly one-half of the cases, occur in the 15 to 19 age group. Every child with a positive tuberculin test has an x-ray and chest examination, a complete history, and a classification by a physician which determines the amount of physical activity advisable. All positive reactors have serial x-ray and physical examinations throughout their entire school life.

FLORIDA

Personal.—Dr. DeWitt C. Daughtry, Miami, has recently been elected president of the Florida Chapter of the American Trudeau Society.

Seminar on Cytology.—The Cancer Cytology Center of the Dade County Cancer Institute in Miami, an affiliate of the Medical Research Foundation of Dade County, has announced its first one-week seminar for physicians to be held at the institute, January 14-19. Instruction will be under the supervision of Dr. J. Ernest Ayre, director of the institute, and its research staff, with more than 20 physicians and scientists on the faculty. The course of instruction will include lectures, demonstrations, and symposiums covering the various branches of medicine as related to cancer, including clinical, cytological, surgical, and histopathological fields. Interested physicians should direct inquiries regarding qualifications, registration, fees, and other etails to the Director of the Dade County Cancer Institute, 155 North West 14th St., Miami. Applications for registration, imited to 35 physicians, will be accepted through January 12.

ILLINOIS

Northwest Territory Centennial Awards.—Northwestern University presented "Centennial Awards for the Northwest Territory" to 100 persons at its Centennial Convocation in Evanston December 2. Nominees for Centennial Awards were selected on the basis that they were living, had achieved prominence in one of the states mentioned, and had made "a substantial contribution to society." They came from Northwest Territory states, Illinois, Indiana, Michigan, Ohio, Wisconsin, and Minnesota. Physicians and medical scientists receiving awards included: Dr. Herman N. Bundesen, president of the Chicago Board of Health; Anton J. Carlson, Ph.D., physiologist, formerly chairman, department of physiology, University of Chicago; Dr. Vernon C. David, formerly chairman, department of surgery, and presently consulting surgeon, Presbyterian Hospital, Chicago; Dr. James B. Herrick, Presbyterian Hospital, Chicago; Roger Adams, Ph.D., head of the chemistry department, University of Illinois, Urbana; Dr. Howard T. Karsner, formerly professor of pathology, Western Reserve University, presently medical research adviser to Bureau of Medicine and Surgery U. S. Navy, Washington, D. C.; Dr. Donald C. Balfour, Mayo Clinic, Rochester, Minn.; Dr. Philip S. Hench, head of the department of rheumatic diseases, Mayo Clinic; Edward C. Kendall, Ph.D., chemist, Mayo Clinic; Dr. William S. Middleton, dean of the Medical School, University of Wisconsin, Madison, Dr. Ralph M. Waters, professor emeritus of anesthesia, University of Wisconsin, Dr. Walter H. Judd, U. S. Representative, Minneapolis.

Chicago

Hospital News.—Harry G. Higgins Jr., comptroller of
Valley Hospital in Dayton, Ohio, from 1946 to 1950, h
appointed assistant administrator of the University of
Research and Educational Hospitals.

Scholarship Funds.—Four scholarship gifts totaling
have been given to the Chicago Medical School. One of
has been received from the Dave Hokin Foundation; $1
for a subsidiary scholarship, which makes up the differ
tween what a student pays in tuition and the cost to th
of providing four years of medical training. The rem
for additional scholarship use to be determined by the
A subsidiary scholarship of $10,000 was given by
Briskin, Chicago. Another gift of $10,000, to be know
Barney Ets Hokin Subsidiary Scholarship, was given
officials of the International Rolling Mills Products Cor

INDIANA

Personal.—Dr. Harris B. Shumacker Jr. has gone to J
Korea as a consultant to the armed services on the trea
frostbite, a subject on which he has been doing rese
will spend about three weeks with field hospital units i

New Indiana Secretary.—James A. Waggener is the ne
tive secretary of the Indiana State Medical Associat
ceeding the late Ray E. Smith. Mr. Waggener, a form
paperman, had been serving as a field secretary for th
association since May, 1949.

KANSAS

First Color TV Installed in Medical School.—The f
television system to be permanently installed for dai
graduate and postgraduate medical instruction in any
school was demonstrated November 29 at the Univ
Kansas Medical Center. The pioneer black-and-white
stallation two years ago was made possible by sta
conversion to a color television system was made po
private funds. The equipment installed at the medical
the result of two years' cooperation between the Uni
Kansas, Remington-Rand, Inc., the Columbia Bro
System, Inc., and the Wilmot-Castle Light Compan
been under test in the CBS laboratories for several m
the auditoriums and conference room teaching areas
sole-type color TV direct-view receivers, each enabling
students to view the operative field closely in all it
colors. The receiver also reproduces the voice of the
surgeon. The audience can ask questions of the surgeo
the program sound is two-way. An additional installati
the teachers at the transmitting and receiving ends of t
to communicate privately without their remarks bein
to the student audience. Thus, the doctor-instructor a
ceiving end can guide the operating surgeon-lecturer to
choicest field of view from the standpoint of the aud
further extension of this installation to the surgical of
an additional monitor receiver there will allow the p
of surgery to supervise closely the TV teaching whe
instructors are operating and lecturing.

The entire surgical curriculum has been revised so
new color TV can be used to best advantage. At pre
junior medical students studying surgery will be req
attend an hour and one-half session of color TV teach
morning for 5 days a week for the 11 weeks they study
that year. An elective program will continue on the
noon each day for those students free to attend. Color
also been scheduled for use in the next surgical post
course in January. Whenever a case of unusual interest
operating room containing the color camera, a code signa
sent out over the medical center loudspeaker system ca
surgeons' and students' attention to the desirability of
ing to the TV receiver.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

NTUCKY

e Medical Election.—At the recent centennial meeting of Kentucky State Medical Association in Louisville, Dr. W. rk Bailey, Harlan, was installed as president. Officers elected e Dr. R. Haynes Barr, Owensboro, president-elect, and Dr. th P. Smith, Corbin, Dr. Thomas Van Zandt Gudex, Louis- , and Dr. R. Ward Bushart, Fulton, vice-presidents. Dr. ce Underwood, Louisville, secretary and general manager he association, was named delegate to the American Medical ociation for a two-year term. Dr. Gaithel L. Simpson, Green- , and Dr. Joe M. Bush, Mount Sterling, were chosen Orator urgery and Orator in Medicine, respectively, and will de- r the annual orations at the 1952 meeting of the association.

RYLAND

lical Book Publishers.—The Williams & Wilkins Company, imore, publishers of medical books and periodicals, have chased the medical book publishing business of Thomas son & Sons, New York. About November 15 all stock was ed to Baltimore, and all orders for Nelson medical books be filled from Baltimore.

ge Health Bureaus.—To improve its services for Baltimore's dren, the city health department has merged the Bureau of ool Hygiene with the Bureau of Child Hygiene under the ction of Dr. Janet Hardy. The Division of School Health has aced the former bureau and is under the direction of Dr. n M. Foord. He began his work on a part-time basis ober 1.

SSACHUSETTS

t Alumni Scholarship Awarded.—The first student to re- e a scholarship award from a $5,000 fund of the Alumni ociation of the Boston University School of Medicine is ight Akers, third year medical student of Los Atlos, Calif. scholarships vary from $200 to $400. The alumni associa- has made available scholarships for students of the Boston versity School of Medicine who have good records, who v good promise, and who can make good use of the fund.

ly of Adrenal Gland in Multiple Sclerosis.—The function he adrenal gland in multiple sclerosis will be investigated at Peter Bent Brigham Hospital, Boston, as a result of a grant 15,000 from the National Multiple Sclerosis Society, New k. The investigation will be under the direction of Dr. rge W. Thorn, physician-in-chief at the hospital. Studies will nade over a one-year period to determine whether a deficient tioning of the adrenal gland is one of the causal factors in tiple sclerosis.

CHIGAN

sonal.—Dr. Frank H. Purcell, Detroit, has been appointed lical director of the Sister Kenny Polio Center at Oakland nty Contagious Hospital, Pontiac. The local center, affiliated the United Health and Welfare Fund of Michigan, gave 0 treatments to patients throughout the state during 1950.

nklin Lecture Series.—Dr. John R. Rees, director of the rld Federation for Mental Health, London, England, was sen as the opening speaker in the annual Leo M. Franklin tures in Human Relations at Wayne University, Detroit. He ured on "Mental Health for the Next Generation" at 8 m. December 1 in the Rackham Memorial Building. The ure series and a memorial professorship were established at yne University in 1949 by the trustees of Temple Beth El in ıor of Leo M. Franklin, who was rabbi of the temple for years before his death. Fritz Redl, Ph.D., professor in the iversity's School of Social Work, is this year's occupant of Franklin Memorial Chair, and under the memorial plan, will be one of the speakers in the series. Other speakers are:

anuary 17, Benjamin M. Spock, University of Pittsburgh.
ebruary 28, Otto Klineberg, Columbia University, New York.
pril 17, Bruno Bettelheim and Allison Davis, University of Chicago.
ay 15, Fritz Redl, Wayne University.

MISSOURI

Diphtheria.—Dr. Buford G. Hamilton, Missouri director of health, has reported to the United States Public Health Service that 30 cases of diphtheria occurred in Kansas City in the 2 weeks ended November 17. All of the cases except 1 were reported from a limited area of the city, and 12 of the patients live in a residential hotel.

NEBRASKA

State Association Postgraduate Program.—The Nebraska State Medical Association conducted six one-day postgraduate courses in different parts of the state December 3-8. Courses which dealt primarily with the heart, cancer, and corticotropin (ACTH) therapy were held in Beatrice, Norfolk, Grand Island, McCook, North Platte, and Scottsbluff. Guest members of the faculty were Drs. Max Cutler, director, Chicago Tumor Institute, and Richard J. Meyer, Armour Laboratories, Chicago; Stuart Abel, Northwestern University, Chicago, and Joseph B. Vander Veer, University of Pennsylvania, Philadelphia. It was the medical association's first venture into this type of postgraduate training. The one-day courses in various parts of the state are aimed at "taking medical education to the doctors," thereby eliminating a good deal of lost time for a physician away from his practice.

NEW YORK

Appoint Pathologist at Brookhaven.—Dr. John Thomas Godwin of New Orleans assumed his post as head of the division of pathology and pathologist at Brookhaven National Laboratory Hospital, Upton, Long Island, succeeding Dr. Sidney C. Madden, who accepted the professorship of pathology at the University of California at Los Angeles. For the past year Dr. Godwin has been pathologist for the Ochsner Clinic and Foundation Hospital in New Orleans, and lecturer in pathology, Tulane University of Louisiana School of Medicine.

Postgraduate Lectures.—Dr. Claude E. Heaton, associate professor of obstetrics and gynecology at New York University College of Medicine, will speak on "Management of Breech Presentation" before the Unity Hospital staff in Brooklyn at 10:30 a. m. December 20 at the hospital. This is part of the instruction provided by the Medical Society of the State of New York in cooperation with the New York State Department of Health.

New York City

School-Hospital for Young Narcotic Addicts.—Riverside Hospital, on North Brother Island in the East River, is being organized as a school-hospital for teen-age narcotics users and addicts. Major alterations are expected to get under way by the end of the year and admission of patients is scheduled to begin April 1. Dr. Jerome L. Leon, deputy medical superintendent of Queens General Hospital, has been appointed medical superintendent of the hospital. During four years in military service, he was assigned psychiatric duties with a general hospital unit which saw two years' duty in the South Pacific. All the resources of the community concerned with the teen-age addiction problem will be centered in the 150-bed facility. The resident professional staff is planned to include a senior psychiatrist, four junior psychiatrists, four psychologists, nine psychiatric social workers, seven recreation leaders, four occupational therapists, and a physical education instructor, in addition to the customary nursing staff. Three chaplains will be assigned to the hospital. Working with the resident staff will be a visiting staff being set up under the department of psychiatry of New York Medical College, Flower and Fifth Avenue Hospitals. The school unit will be staffed and operated by the Board of Education. Office space and facilities will be made available to the several public and voluntary agencies who will assume responsibility for the follow-up work on the young patients. To make sure that the above coordination of community effort is effective, patients will be intensively screened on admission and those who are psychotic or otherwise deemed to be hopeless will be sent to appropriate institutions.

SOUTH CAROLINA

Assembly Studies Mental Health Facilities.—The State General Assembly has created a state committee to study mental health facilities and legislation in South Carolina. The group is inspecting both public and private institutions in the state and will make its report to the General Assembly next year.

UTAH

Personal.—Urs P. Hoessley has been named assistant research professor in the department af anatomy at the University of Utah College of Medicine, Salt Lake City.

New State Health Commissioner.—Dr. George A. Spendlove, who for the last year has been acting director of the state department of health, was named state health commissioner Sept. 7. Dr. Spendlove formerly was with the United States Public Health Service for four years.

VIRGINIA

Appoint Executive Secretary.—Mr. Robert I. Howard has been appointed executive secretary-treasurer and director of public relations for the Medical Society of Virginia. He assumed office October 5. Mr. Howard formerly was assistant to the late Henry S. Johnson, whom he succeeds.

Symposium on Traumatic Injuries.—"Common Traumatic Injuries in General Practice" will be the subject of a conference for general physicians of the state at the University of Virginia Department of Medicine, Charlottesville, January 11. This will be the second in a series of postgraduate symposiums scheduled for the academic year and will be followed by a conference on infectious diseases April 4.

Dr. Meredith Heads Department.—Dr. John M. Meredith has been named professor and head of the department of neurological surgery at the Medical College of Virginia, Richmond, succeeding Dr. Claude C. Coleman, who had resigned (The Journal, July 21, p. 1141). Dr. Meredith was on the teaching staff of the University of Virginia at Charlottesville, from 1937 until he became associated with Dr. Coleman in 1941.

'ASHINGTON

Allen Leaves University for Federal Post.—The Associated Press reported on November 22 that Dr. Raymond B. Allen has resigned as president of the University of Washington to accept an appointment by President Truman as director of the Psychological Strategy Board early in January. Dr. Allen was executive dean of the Chicago colleges of the University of Illinois and dean of the college of medicine before he went to Seattle in 1946. The Psychological Strategy Board directs the government's cold war against Russia and her satellites. It is now headed by Gordon Gray, president of the University of North Carolina, who is understood to be anxious to return to his university post. Dr. Allen has held three national positions during his presidency at the university. He was a member of the Eberstadt Committee of the Hoover Commission, was first director of medical services for the National Military Establishment, and last summer acted as chairman of the Salary Stabilization Board of the Economic Stabilization Agency.

WEST VIRGINIA

Personals.—Dr. Robert T. Stenberg of Richmond, Ind., has been named superintendent of Spencer State Hospital, succeeding Dr. Thomas S. Knapp, who resigned to engage in private practice in South Charleston. Dr. Stenberg has recently been with the Veterans Administration hospitals in Fort Custer, Mich., and at Fort Benjamin Harrison, Ind.——Dr. James A. Haney of Steubenville, Ohio, who has served as health commissioner for Jefferson County for four years, has accepted appointment as assistant superintendent at Hopemont Sanitarium and assumed his duties there December 1. He succeeds Dr. Edwin J. Kroeker, who resigned.——Drs. Grover C. Corder of Jane Lew and William M. Echols of Richwood, members of the Central West Virginia Medical Society, were recently elected to honorary lifetime membership in the West Virginia State Medical A
ation.——Dr. Walter E. Vest, Huntington, who has serv
several years as editor of the *West Virginia Medical Journ*
been reelected a member of the publication committee f
five-year term ending December 31, 1956.

State Society to Distribute Press Code.—The council
West Virginia State Medical Association at the regul
meeting in Parkersburg October 28 directed that the D
Press-Radio Code of Ethics be printed in a form suital
framing and distributed to all members of the state m
association, newspapers, trade and professional journal
broadcasting stations in West Virginia. The code was pr
by a committee headed by Dr. Everett L. Gage, Bluefiel
has been approved by the council, the Journalism Conf
composed of members of the newspaper profession in
Virginia, and by the West Virginia Broadcasters' Asso
The code will be printed and mailed out early in Decem

GENERAL

Society Elections.—The American Public Health Associa
its meeting in San Francisco in October chose the fo
officers for the coming year: Dr. Gaylord W. Anderson,
apolis, president; Dr. Wilton L. Halverson, San Fra
president-elect; Charles Glen King, Ph.D., New York, tr
and Dr. Reginald M. Atwater, New York, executive se

Meeting on Nervous and Mental Diseases.—The Ass
for Research in Nervous and Mental Diseases will hold
nual meeting December 14-15 at the Hotel Roosevel
York, under the presidency of Dr. S. Bernard Wortis, Ne
The subject of this year's meeting is "Treatment in Psyc
A total of 33 papers to be presented will divide the su
treatment into individual and group psychotherapy;
electrical, and pharmacological treatments, and neur
treatments.

Dearholt Medalist.—Dr. John H. Skavlem, medical dir
Dunham Hospital, Cincinnati, has been named recipien
1951 Dearholt Medal by the Mississippi Valley Confer
Tuberculosis. The medal is given annually by the confer
outstanding contributions to tuberculosis control. Dr. S
who received the award during the recent meeting of t
ference in Chicago, is president of the American
Society, medical section of the National Tuberculosis
tion, and a member of the National Tuberculosis Ass
board of directors. He is also a past president of the
Valley Trudeau Society. Dr. Skavlem served for sever
as a member of the ATS council and advisory board, as
on numerous committees of the society.

Awards in Plastic Surgery.—The Foundation of the A
Society of Plastic and Reconstructive Surgery has ann
its prizes for 1951. The first scholarship was not award
second was given to Dr. Richard B. Stark, New York,
essay on "The Cross-Leg Flap Procedure." Honorable r
was awarded Dr. Kathryn Lyle Stephenson, Santa B
Calif., for her essay on "The Production of Ectopic Car
to Dr. Michael Tempest, Leeds, Yorkshire, England, for a
on "Cross-Finger Flaps in the Treatment of Injuries
Finger Tip," and to Dr. Allyn J. McDowell, North Holl
Calif., for an essay on "Mass Treatment of Burns in
Warfare."

Pamphlet on Glaucoma.—The National Society for the
tion of Blindness, 1790 Broadway, New York, has pu
an eight-page pamphlet on glaucoma and copies are av
without charge. The pamphlet points out that the best
against glaucoma is a thorough eye examination at leas
every two years after the 40th birthday. The three main
to remember about glaucoma are said to be (1) it strike
40 in most cases; (2) it is difficult to detect in early stages
a result many have the disease and do not know it, and (3)
usually be checked if caught early. According to the s
800,000 men and women over 40 years of age are slowly
sight from glaucoma because of ignorance and neglect.
tunately, most of them do not realize that they face blin

iation Research Society.—The formation of this group was
ɔunced November 13 by Gioacchino Failla, D.Sc., professor
adiology and director of the radiology laboratory at the
ımbia University College of Physicians and Surgeons, New
k, at a dinner of the Alumni of the Oak Ridge (Tenn.) In-
te Isotope Training Course. Its objects are to promote
ırch *in the sciences relating to radiation;* to facilitate inte-
on of different disciplines in the study of radiation effects,
to promote the diffusion of knowledge in these fields. Mem-
hip will be limited to those who "have made meritorious
ributions to the advancement of radiation physics, chem-
or biology by independent or original research, or have
ered some other special service to the cause of the natural
life sciences."

\S Meeting in Philadelphia.—The American Association
he Advancement of Science will hold its annual meeting in
adelphia, *December 26-31. The program includes a session*
ıedicinal chemistry December 28. A four-session symposium
\bnormalities of Lipid Metabolism, with special reference
teriosclerosis, will be held December 29-30. There will also
medical scientists' dinner on December 29, at which Mal-
ı *Soule, D.Sc., Ann Arbor, Mich., will deliver* a vice-presi-
ial address. The Oak Ridge Institute of Nuclear Studies will
ɛnt a two-day symposium on Radioisotopes in Medicine on
ɛmber 28, and the program of the Society for Research in
d Development *includes a symposium on Biochemistry of*
ition in Human Growth on December 27. Registration fees
$2 for members of the association and $3 for nonmembers.

arch on Adolescent Problems.—The Austin Riggs Founda-
will make an investigation of the problems of adolescence
tudying children at the Riggs Clinic in Pittsfield, Mass., and
s headquarters in Stockbridge, Mass. Juvenile delinquents
young narcotic addicts who come to the attention of the
ts in Pittsfield will also be included in the study. The Field
ıdation has given $19,800 to carry the project through two
; of its five-year plan. Erik H. Erikson of the foundation
will direct the project. He will also study children at the
hiatric Institute in Pittsburgh. Dr. Robert P. Knight, medical
itor of the foundation, Dr. Joseph O. Chassell, psychiatrist,
garet Brenman, Ph.D., and David Rappaport, Ph.D., Stock-
ge, Mass., all of the foundation staff, will be consultants. The
stigations will cover a study of juvenile delinquency, nar-
s addiction, and all the confusing aspirations and emulations
are found during adolescence.

ntory of Health Research.—The Health Information Foun-
ın is taking a census of health research activities in the
ed States. *Questionnaires have been sent to about a thousand*
iduals and groups connected with universities and colleges,
to government agencies, nurses' organizations, and others.
foundation wants to find out what social science research
ealth has been conducted since 1945, and any major work
: since 1940, especially as related to levels of community
th facilities and services and community participation in
th programs and in health social action programs. Some
he facts sought are the areas covered by these research
ects, research methods used, and plans for publication of cur-
studies. Over a hundred projects have already been reported.
inventory will serve to reduce duplication and to speed up
ıncement of health research. Findings from this census will
ıublished early in 1952 for distribution to health and com-
ıity leaders across the nation. The foundation plans to keep
census current with a new report issued each year.

D. Osborne Fellowship in Dermal Pathology.—This fel-
ship, sponsored by the American Academy of Dermatology
Syphilology, is to provide annually the opportunity for study
training in dermal pathology for one year to a graduate
ent who has completed at least two years of training in
natology or one of its allied branches in accordance with
requirements of the American Board of Dermatology and
hilology. A stipend of $2,000 will be given to the candidate
cted. The period of training will be spent at the Armed Forces
itute of Pathology, Washington, D. C., the appointment be-
subject to approval by the director of the institute. As the
erican Board of Dermatology and Syphilology has approved
the institute for one year of training, the time spent will be accredited by the board. Dermatologists in training who are interested may obtain application blanks for the Earl D. Osborne Fellowship from Dr. Hamilton Montgomery, 102-110 Second Ave., Southwest, Rochester, Minn., Chairman of the Committee on Pathology of the American Academy of Dermatology and Syphilology. The next appointment available begins July 1, 1952.

Pan American Congress.—The third Pan American Congress of Oto-Rhino-Laryngology and Broncho-Esophagology will be held in Havana, Cuba, January 20-24 under the presidency of Dr. Jose C. Gros. Dr. Chevalier L. Jackson, Philadelphia, has been appointed guest of honor of the Cuban Society of Oto-Laryngology. The tentative program lists the following speakers:

Evaluation of Surgery and Irradiation in Treatment of Laryngeal Cancer, Drs. Leborgne, Uruguay, or Baclesse, France; Alonso, Uruguay, and Martin, United States.
Evaluation of Antibodies, Desensitization and Surgery in the Treatment of Sinusitis, *Drs. Hansel, United States; De Lima, Brazil; Schall, United States, and Tato, Argentina.*
Nonmalignant Stenosis of the Esophagus, Drs. Mattos Barretto, Brazil; Barani, Uruguay, and Holinger, United States.

A series of instruction courses will also be given. The official languages of the congress are Spanish, French, English, and Portuguese. There will be a system of simultaneous translation of these languages to English and Spanish. Reservations must be made before December 15 with the general secretary, Dr. Pedro Hernandez Gonzalo, 8 No. 358, Vedado, Havana, Cuba. The inscription fee is $10.

Cerebral Palsy Research Award.—Dr. Samuel P. Hicks, Boston, was recently named the first winner of United Cerebral Palsy's Max Weinstein Research Award for the "outstanding scientific achievement" of the year in the field of cerebral palsy. Dr. Hicks, who is associated with Harvard Medical School and New England Deaconess Hospital, Boston, and with the Pondville Hospital, a state cancer hospital in Walpole, Mass., was selected by a four-man committee 24 hours after he had read a noteworthy paper at United Cerebral Palsy's convention in Philadelphia November 3. He reported findings that, in experimental animals, x-rays and certain chemicals given to mothers could produce damage to the brain such as is seen in cerebral palsy. The Weinstein Award, a plaque and $1,000 in cash, was established with a fund of $10,000 left by the late Max Weinstein, chairman of the Board of Russeks Fifth Ave., New York. The award committee included Dr. Sidney Farber, Children's Medical Center, Boston; Dr. Houston Merritt, director of Neurological Institute, New York, and vice-chairman of the association's medical advisory committee; Dr. Seymour S. Kety, National Institute of Neurological Diseases and Blindness, Bethesda, Md., *and Dr. James L. Wilson, professor of pediatrics,* University of Michigan, Ann Arbor.

Papers for Venereal Disease Symposium.—Investigators with suitable material are urged to submit papers for consideration for the program of the annual venereal disease symposium on "Recent Advances in the Study of Venereal Diseases," which will be held May 1-2, in the Federal Security Building, Washington, D. C. This symposium will again be conducted under the joint auspices of the Experimental Therapeutics Study Section of the National Institutes of Health and the American *Venereal Disease Association and will be held in conjunction* with the annual meeting of the association. Titles of papers proposed along with the list of authors in proper sequence and brief abstracts should be sent in duplicate to Dr. J. E. Moore, 804 Medical Arts Building, Baltimore 1, and Dr. William L. Fleming, 750 Harrison Ave., Boston 18. The deadline for receipt of titles and abstracts will be January 15. Authors will be notified of the action of the joint program committee within a month after the deadline. Information about the symposium may be obtained from Frederick W. Appel, Ph.D., Executive Secretary, Experimental Therapeutics Study Section, National Institutes of Health, Bethesda 14, Md., or from Dr. Fleming, Secretary of the American Venereal Disease Association, at the above address.

Tropical Medicine and Malaria Societies Merge.—A new scien*tific body, the American Society of Tropical Medicine and* Hygiene, has been formed by the amalgamation of the 47-year-old American Society of Tropical Medicine and the 34-year-old

National Malaria Society. The dissolution of the long-established scientific groups was a recognition of the virtual eradication of endemic malaria from this country, officials said. The new American Society of Tropical Medicine and Hygiene was created to succeed them for "the advancement of tropical medicine and hygiene, including medicine, nursing, engineering, entomology, parasitology and allied specialties in this field." Martin D. Young, Sc.D., Columbia, S. C., of U. S. Public Health Service, was elected president of the new society. Dr. William A. Sodeman of New Orleans and the Tulane University of Louisiana School of Medicine, was named president-elect, and H. W. Van Hovenberg of Mount Pleasant, Texas, was elected vice-president. Galveston, Texas, was chosen as the place of the first meeting sometime in 1952. The American Society of Tropical Medicine and the National Malaria Society met jointly in Chicago in November with the American Academy of Tropical Medicine and the American Society of Parasitologists, two organizations which are not affected by the merger.

Symposium on Premedical Education.—Alpha Epsilon Delta, national premedical honor society, in cooperation with the American Association for the Advancement of Science (Section K, Subsection Nm-Medicine), the American Society of Zoologists, and Beta Beta Beta biological fraternity, will conduct a symposium at the Benjamin Franklin Hotel, Philadelphia, December 28, on "Premedical Education and Social Health." The program will include the following speakers: Hugh E. Setterfield, Ph.D., professor of anatomy, School of Medicine, Ohio State University, "Introductory Remarks"; Dr. John McK. Mitchell, dean of the School of Medicine, University of Pennsylvania, "Social Problems in Medicine"; Dr. Maurice H. Greenhill, associate professor of psychiatry, The Duke University School of Medicine, Durham, N. C., "Health Problems of Social Origin," and Luther E. Woodward, Ph.D., coordinator, New York State Department of Mental Hygiene, "Emotional Factors in Social Health." Attention will be focused on medical problems which emphasize the importance of social sciences in the premedical educational program. Persons interested in premedical education and student guidance are invited. Reservations for the luncheon (price $3) may be made in advance by writing to Maurice L. Moore, Ph.D., 37 Whitemarsh Road, Ardmore, Pa.

Report of Commonwealth Fund.—According to its annual report made public November 19, the first goal of the Commonwealth Fund at present is the better teaching of doctors. Gifts for this purpose accounted for $1,008,242.50 out of the year's total appropriations of $2,879,383.99. The fund made grants during the year to seven institutions. The largest, $344,725, went to Cornell University Medical College for three years' support of a clinic for comprehensive medical care in the outpatient department of New York Hospital, to which medical students will be assigned for half their senior year. The grant also continues partial support of a special clinic which is training teachers and conducting research in psychosomatic medicine. The aim of this plan is to give the student time to see the same patient repeatedly and so to get a better idea of health and sickness as a continuing experience rather than a succession of unrelated episodes. A grant of $264,912 went to the University of Colorado School of Medicine for the first three years of an experiment intended "to demonstrate the practice of good general medicine." At the Denver General Hospital students will have consecutive experience in the care of patients for at least two years. Grants to the department of rehabilitation and physical medicine of the New York University College of Medicine and to the University of Cincinnati College of Medicine were designed to strengthen medical care by skilful attention to the patient's emotional needs. Renewed support was given to a regional postgraduate educational service of the Medical College of Virginia and the University of Virginia. The fund will contribute to the cost of training scientists for medical research at the Massachusetts Institute of Technology for the next five years, and is helping in the development of field training at the Harvard School of Public Health.

Appropriations for experimental health services, including public health and hospital activities, amounted to $679,471.84. The largest new grant in this field was for a study of family experience with medical care under the Health Insura
of Greater New York and in a comparable sample of N
families outside that plan. Studies of schizophrenia a
University of Louisiana School of Medicine headed th
13 grants for medical research amounting to $454,768
vanced fellowships in medicine, offered primarily to
in medical schools, were awarded to 19 Americans. Th
of the fund has been increased to $81,000,000 through
mination of a trust established by Edward S. Harkness
bequest from Mrs. Harkness, who also left the fund
at 1 East 75th St., New York. This is being altered to
headquarters for the fund's operations.

FOREIGN

Symposium Neuroradiologicum.—The third Symposi
roradiologicum will be held in Stockholm Sept. 17-
under the presidency of Professor Erik Lindgren, S
The main theme will be "Vertebral Angiography,
Diagnosis of Spinal Tumor, and Phlebography in N
ology." All those wishing to attend should send their n
addresses to the Secretary, Docent Åke Lindbom, S
Neuroradiologicum, Serafimerlasarettet, Stockholm K

CORRECTION

Nobel Prize for Yellow Fever Vaccine.—The late Dr.
and Dr. Hugh Smith, to whom Dr. Max Theiler, N
winner in medicine, gives credit for helping develop
fever vaccine in the laboratory in New York, were m
the International Health Division of the Rockefelle
tion, not of the Rockefeller Institute, as was stat
JOURNAL November 3, p. 985.

Michael Reese Hospital.—In the Internship and
Number of THE JOURNAL, Sept. 29, 1951, the listing
Reese Hospital, Chicago, under approved internshi
390 should have noted that the hospital is used to
extent in the teaching program of Northwestern
Medical School, Chicago. This notation was in
omitted from the listing as originally published.

EXAMINATI
AND LICENSU

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 24-26, 1952. Sec
Gill, 537 Dexter Ave., Montgomery 4.

ARIZONA:* *Examination.* Phoenix, Jan. 19. *Reciprocity.* Phoeni
Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoen

ARKANSAS:* *Eclectic.* Little Rock, June 5-6. Sec., Dr. Frank C.
Broadway, Little Rock.

COLORADO:* *Examination.* Denver, Jan. 9-11. Final date for fi
cation is Dec. 10. Sec., Dr. Samuel H. Brown, 831 Rep
Denver 2.

CONNECTICUT:* *Regular Examination.* Hartford, March 11-12.
Board, Dr. Creighton Barker, 160 St. Ronan St., New Ha
pathic Examination. Derby, March 11. Sec., Dr. Donald A
Elizabeth St., Derby.

DELAWARE: *Examination.* Dover, Jan. 8-10. *Endorsement.* Do
Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

FLORIDA:* *Examination.* Jacksonville, Nov. 25-27. Sec., Dr.
Pearson, 701 DuPont Bldg., Miami.

GEORGIA: Atlanta and Augusta, June. Sec., Mr. R. C. Colema
Capital, Atlanta 3.

GUAM: The Commission on Licensure will meet whenever
appears or submits his credentials. Ex. Sec., Dr. John K.
Agana.

HAWAII: *Examination.* Honolulu. Jan. 14-17. Final date for fi
tion is Dec. 14. Sec., I. L. Tilden, 1020 Kapiolani St., Hon

IDAHO: Boise, Jan. 7-9. Sec., Mr. Armand L. Bird, 305 Sun

INOIS: Chicago, Jan. 22-24. Supt. of Regis., Mr. Charles F. Kervin, apitol Bldg., Springfield.

IANA: Indianapolis, June 1952. Sec., Dr. Paul R. Tindall, 1138 K of P ldg., Indianapolis 4.

NSAS: Topeka, Dec. 12-13. Sec., Dr. O. W. Davidson, 772 New Brotherood Bldg., Kansas City.

NTUCKY: *Examination.* Louisville, Dec. 11-13. Sec., Dr. Bruce Underood, 620 S. 3rd St., Louisville.

INE: Portland, March 11-12. Sec., Dr. Adam P. Leighton, 192 State St., ortland.

RYLAND: *Examination.* Baltimore, Dec. 11-14. Sec., Dr. Lewis P. undry, 1215 Cathedral St., Baltimore.

SSACHUSETTS: *Examination.* Boston, Jan. 15-18. Sec., Dr. Robert C. ochrane, Room 37 State House, Boston.

HIGAN:* *Examination.* June. Sec., Dr. J. E. McIntyre, 100 W. Allegan t., Lansing 8.

NNESOTA:* Minneapolis, Jan. 15-17. Sec., Dr. J. F. Du Bois, 230 Lowry ledical Arts Bldg., St. Paul 2.

SISSIPPI: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. sst. Sec., Dr. R. N. Whitfield, Old Capitol Bldg., Jackson.

SOURI: *Examination.* Jefferson City, Feb. 19-21. *Reciprocity.* Jefferson ity, Feb. 11. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol ldg., Jefferson City.

NTANA: Helena, April 1. Sec., Dr. S. A. Cooney, 214 Power Block, lelena.

ADA:* Carson City, Feb. 4. Sec., Dr. George H. Ross, 112 Curry St., arson City.

W HAMPSHIRE: Concord, March 12-13. Sec., Dr. John S. Wheeler, State louse, Concord.

W JERSEY: *Examination.* Trenton, June 17-19. Sec., Dr. E. S. Hallinger, 8 W. State St., Trenton.

W MEXICO:* Santa Fe, April 7-8. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

W YORK: *Examination.* Albany, Buffalo, New York City and Syracuse, eb. 5-8. Sec., Dr. Jacob L. Lochner, Jr., 23 S. Pearl St., Albany.

RTH CAROLINA: *Endorsement.* Raleigh, Jan. 21. Sec., Dr. Joseph J. ombs, 419 Professional Bldg., Raleigh.

RTH DAKOTA: Grand Forks, Jan. 2-5. Sec., Dr. C. J. Glaspel, Grafton.

O: *Examination.* Columbus, Dec. 13-15. Sec., Dr. H. M. Platter, 21 S. road St., Columbus.

LAHOMA:* *Examination.* Oklahoma City, June 4-5. Sec., Dr. Clinton allaher, 813 Braniff Bldg., Oklahoma City.

GON:* *Examination.* Portland, Jan. 3-5. *Reciprocity.* Portland, Jan. 1-12. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

INSYLVANIA: Philadelphia, Jan 22-25. Acting Sec., Mrs. M. G. Steiner 51 Education Bldg., Harrisburg.

ERTO RICO: *Examination.* San Juan, March 4. Sec., Mr. Luis Cueto oll, Box 3717, Santurce.

ODE ISLAND:* Providence, Jan. 3-4. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

JTH DAKOTA:* *Examination.* Sioux Falls, Jan. 15-16. Ex. Sec., Mr. John . Foster, 300 First National Bank Bldg., Sioux Falls.

NNESSEE:* Memphis, Dec. 19-20. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

RMONT: Burlington, Jan. 31-Feb. 2. Sec., Dr. F. J. Lawliss, Richford.

EST VIRGINIA: *Examination.* Charleston, Jan. 7-9. Sec., Dr. N. H. Dyer, Capitol Bldg., Charleston 5.

ISCONSIN:* Madison, Jan. 8-10. Sec., Dr. A. G. Koehler, River Falls.

YOMING: Cheyenne, Feb. 4. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

OARDS OF EXAMINERS IN THE BASIC SCIENCES

LASKA: *Examination.* On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

IZONA: Tucson, Dec. 18. *Examination.* Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

OLORADO: Denver, March 5-6. *Examination.* Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

ONNECTICUT: New Haven, Feb. 8. *Examination.* Miss Mary G. Reynolds, Executive Assistant, State Board of Healing Arts, 110 Whitney Ave., New Haven 10.

ISTRICT OF COLUMBIA: *Examination.* Washington, April 21-22. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington, D. C.

LORIDA: Gainesville, June 7. *Examination.* Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

OWA: Des Moines, Jan. 8. *Examination.* Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: Detroit and Ann Arbor, Jan. 11-12. *Examination.* Sec., Miss Eloise LeBeau, 501 W. Michigan Ave., Lansing 15.

MINNESOTA: *Examination.* Minneapolis, Jan. 8-9. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

NEBRASKA: Omaha, Jan. 8-9. Director, Bureau of Examining Boards, Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

NEVADA: Reno, Jan. 8. *Examination.* Sec., Mr. Frank Richardson, University of Nevada, Reno.

NEW MEXICO: *Examination.* Santa Fe, Dec. 16. Sec., Mrs. Marguerite Cantrell, Box 1592, Santa Fe.

OKLAHOMA: *Examination.* Oklahoma, April 14. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

RHODE ISLAND: Providence, Feb. 13. *Examination.* Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: *Examination.* Memphis, Dec. 27-28. Sec., Dr. O. W. Hyman, 864 Union Ave., Memphis.

TEXAS: Austin, April. *Examination.* Sec., Bro. Raphael Wilson, 306 Nalle Bldg., Austin.

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* Basic Science Certificate required.

MEETINGS

AMERICAN COLLEGE OF CLINIC ADMINISTRATORS, Conrad Hilton Hotel, Chicago, Jan. 13-15. Dr. R. J. Wilkinson Jr., 1115 Sixth Avenue, Huntington, W. Va., President.

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY, Palmer House, Chicago, Dec. 8-13. Dr. John E. Rauschkolb, P. O. Box 6565, Cleveland, Secretary.

AMERICAN SOCIETY FOR SURGERY OF THE HAND, Palmer House, Chicago, Jan. 25-26. Dr. J. H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, William Penn Hotel, Pittsburgh, Jan. 18-19. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASES, Hotel Roosevelt, New York, Dec. 14-15. Dr. Clarence C. Hare, 170 Maple Ave., White Plains, N. Y., Secretary.

INTERNATIONAL MEDICAL ASSEMBLY OF SOUTHWEST TEXAS, Municipal Auditorium, San Antonio, Jan. 22-24. Dr. John J. Hinchey, P. O. Box 2445, San Antonio 6, Secretary.

PUERTO RICO MEDICAL ASSOCIATION, Santurce, Dec. 12-16. Dr. Victor J. Montilla, P. O. Box 3866, Santurce, Secretary.

INTERNATIONAL

AUSTRALASIAN MEDICAL CONGRESS, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

INTERNATIONAL COLLEGE OF SURGEONS, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Friends House, London, N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall Mall East, London, S.W.1, England, Secretary.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, Mexico City, Mexico, Dec. 11-19. Mrs. Grace E. O'Neill, Division of World Affairs, National Association on Mental Health, 1790 Broadway, New York 19, N. Y., U. S. A.

INTERNATIONAL CONGRESS ON NEUROPATHOLOGY, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Hon. Secretary.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Panama City, R. P., Feb. 24-29. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York, N. Y., U. S. A., Executive Director.

NEURORADIOLOGIC SYMPOSIUM, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY, Mexico City, Mexico, Jan. 6-12. Dr. Luis Sanchez Bulnes, Gomez Farias 19, Mexico 4, D.F., Secretary-General.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHOESOPHAGOLOGY, Havana, Cuba, Jan. 20-24.

DEATHS

Acuff, Herbert ⊕ Knoxville, Tenn.; born in Washburn, Tenn., Aug. 22, 1886; University of Louisville (Ky.) Medical Department, 1911; also a graduate in pharmacy; president since 1950 and treasurer from 1946 to 1948 of the International College of Surgeons, since 1947 founder fellow of its qualification board, and president of the United States Chapter from 1946 to 1948; life fellow of the American College of Surgeons and the Southeastern Surgical Congress, of which he was president in 1947-1948; in 1945-1946 member of the board of directors of the American Cancer Society and since 1945 member of the board of directors and service director of the Tennessee Division; member of the American Association of Railway Surgeons, the American Goiter Association and the United States Committee, Inc., of the World Medical Association, the Civitan Club (international president, 1926-1927), and past president of the Knoxville Academy of Medicine; associate member of the American College of Chest Physicians; honorary fellow of the Surgical Society of Rome, Italy, Piedmontese Society of Torino, Italy, Medical and Surgical Society of São Paulo, Brazil, Societa Tosco-Umbra de Chirurgia, and Sociedad Mexicana de Estudios Anatomicos y de Tecnica Operatoria; received degree of honoris causa from University of Buenos Aires; served as a major in the medical corps of the United States Army during World War I; since 1945 secretary of the International Board of Cancerology; member of the Tennessee Hospital Board and the Tennessee Hospital Licensing Board; visiting surgeon, Fort Sanders, East Tennessee Baptist, and Knoxville General hospitals; consulting surgeon and chairman of the operating committee of the Beverly Hills Sanatorium; chief-of-staff, St. Mary's Memorial Hospital; president and surgical director of the Acuff Clinic; surgeon, Southern Railway System; chief consulting surgeon since 1915 of the Pruden Coal and Coke Company; active in starting the University of Tennessee Atomic Energy Research Center and Hospital; contributed many papers to medical literature on various surgical subjects; died November 2, aged 65, of coronary disease.

gers, Edward James, Pittsford, Vt.; born in Ninety Six, S. C., 1877; Medical College of the State of South Carolina, Charleson, 1908; Columbia University College of Physicians and Surgeons, New York, 1912; assistant professor emeritus of clinical medicine at the University of Vermont College of Medicine in Burlington; member of the American Trudeau Society, American Medical Association, International Union Against Tuberculosis, and the National Tuberculosis Association; past president of the Vermont State Medical Society and the Eastern Division of the American Sanatorium Association; for many years a member of the state board of health, serving as chairman from 1925 to 1931; advisor to the state department of public welfare from 1923 to 1938; at one time represented Pittsford in the state legislature; for many years medical director of the Washington County Sanatorium in Barre and of the Caverly Preventorium and superintendent and medical director of the Vermont Sanatorium; received the honorary degree of doctor of science from Middlebury College in Middlebury; died in Rutland (Vt.) Hospital October 22, aged 74.

Bonynge, Charles William ⊕ Los Angeles; University of Southern California College of Medicine, Los Angeles, 1903; clinical professor of medicine (public health and preventive) at his alma mater; specialist certified by the American Board of Pathology; director of the laboratory of the Certified Milk Commission; president of the American Association of Medical Milk Commissions from June, 1944, to June, 1945; consulting pathologist at Children's Hospital, Los Angeles General Hospital and St. Vincent's Hospital, where he died October 7, aged 71, of ruptured abdominal aneurysm.

Ashbaugh, Roy Asquith, Riverton, Wyo.; Chicago College of Medicine and Surgery, 1914; member of the American Medical Association; died September 19, aged 64.

Blankfeld, Nathan ⊕ Brooklyn; University of Bellev pital Medical College, New York, 1927; member of the A can Academy of Opthalmology and Otolaryngology; fe the American College of Surgeons; specialist certified b American Board of Otolaryngology; served during Worl II; on the staffs of Kings County Hospital, St. Peter's Ho Samaritan Hospital, and Midwood Hospital, where h November 1, aged 50.

Blashill, James Bernard ⊕ Grosse Pointe Park, Mich.; U sity of Michigan Medical School, Ann Arbor, 1930; during World War II; on the staffs of East Side Genera pital and Alexander Blain Hospital in Detroit; died Octo aged 47, of amyotrophic lateral sclerosis.

Bowen, Emmett William, Watertown, Wis.; Marquette U sity School of Medicine, Milwaukee, 1915; member American Medical Association; served during World Wa filiated with St. Mary's Hospital; died September 3, a of coronary occlusion.

Boynton, Ray D., Wisconsin Dells, Wis.; Marquette Un School of Medicine, Milwaukee, 1913; served as health affiliated with Reedsburg (Wis.) Municipal Hospital Mary's Ringling Hospital in Baraboo; died August 28, a of injuries received in an automobile accident.

Butman, William Charles, Hebron, Ind.; Southwestern pathic Medical College and Hospital, Louisville, Ky. member of the American Medical Association; served dent of the Porter County Medical Society; died Septem aged 71, of heart disease.

Hill, Elmer ⊕ Walla Walla, Wash.; Kansas Medical Medical Department of Washburn College, Topeka, 1 low of the American College of Surgeons; for many yea cian at the state penitentiary; on the staffs of the Wall General Hospital and St. Mary's Hospital, where he d tember 3, aged 69, of coronary occlusion.

Hughes, William H., Mitchellville, Md.; Leonard School, Raleigh, N. C., 1897; died in Freedmen's Hospita ington, D. C., September 29, aged 81.

Hupe, Charles, Lafayette, Ind.; Ernst-Moritz-Arndt U tät Greifswald Medizinische Fakultät, Greifswald, Germany, 1882; member of the American Medical Ass for 46 years treasurer of the Tippecanoe County Med sociation; for many years on the staff of St. Elizabeth where he died September 18, aged 94, of pneumonia f a fractured hip received in a fall.

Kavanagh, Thomas Stephen, New Orleans; Medical Dep of Tulane University of Louisiana, New Orleans, 1901; of the American Medical Association; died October 7, of bronchopneumonia, pyelonephritis, and prostatic carcinoma.

Keating, John Joseph, New Milford, Conn.; Univers Bellevue Hospital Medical College, New York, 1934; of the American Medical Association; served during Wo II; died October 8, aged 42.

Kerrigan, George Peter, St. Petersburg, Fla.; College o cians and Surgeons of Chicago, School of Medicine of t versity of Illinois, 1901; died in Little Company of Ma pital November 1, aged 82.

Kirschner, William Lee, New York; University and Hospital Medical College, New York, 1919; member American Medical Association and the American Soc Anesthesiologists; associated with St. Francis Hospit September 18, aged 57, of heart disease.

Lane, Warner Durelle, Romeo, Mich.; Detroit College o cine and Surgery, 1919; member of the American Medi sociation; died in Detroit August 1, aged 57, of bronc carcinoma.

⊕ Indicates Fellow of the American Medical Association.

terbach, William Frederick, Dayton, Ohio; College of sicians and Surgeons of Chicago, School of Medicine of the iversity of Illinois, 1905; served during World War I; died ober 2, aged 70, of coronary thrombosis.

r, Graham MacAllister, Elgin, Ill.; Barnes Medical College, Louis, 1911; member of the American Medical Association; iated with St. Joseph Hospital and Sherman Hospital, where died August 30, aged 63, of cardiac decompensation.

e, John Franklin, Lancing, Tenn.; Lincoln Memorial Unisity Medical Department, Knoxville, 1910; died in Fort San- Hospital, Knoxville, October 3, aged 71.

Lemore, William Thomas, Courtland, Va.; University Col- of Medicine, Richmond, 1899; member of the American dical Association; died September 29, aged 77, of a heart ck.

y, Robert John ⊕ Cleveland; University of Wooster Medical artment, Cleveland, 1906; specialist certified by the Ameri- Board of Radiology; member of the American Roentgen Society, Radiological Society of North America, of which vas past president, secretary, and for several years one of the ctors, and the American College of Radiology; head of the artment of Radiology, St. Luke's Hospital, from 1914 to 6; died October 17, aged 72, of coronary thrombosis.

ore, Marshall Abner ⊕ Montgomery, W. Va.; Medical Col- of Virginia, Richmond, 1915; member of the Industrial dical Association; past president of the Fayette County dical Society; served during World War I; died October 29, d 62, of coronary occlusion.

fey, Herbert William ⊕ New Brunswick, N. J.; University Pennsylvania School of Medicine, Philadelphia, 1914; fellow the American College of Surgeons; past president of the iety of Surgeons of New Jersey; for many years trustee of Medical Society of New Jersey; served overseas during rld War I; on the staff of the Middlesex General Hospital, re he died October 26, aged 64.

lis, William Henry, St. Augustine, Fla.; Long Island College spital, Brooklyn, 1895; served during World War I; formerly cticed in Brooklyn, where he was on the staff of Kings County spital; died in Flagler Hospital October 4, aged 79, of coro- y thrombosis.

vnam, John Russel ⊕ Cheyenne, Wyo.; Indiana University ool of Medicine, Indianapolis, 1919; served during World r II; died August 24, aged 57, of coronary thrombosis.

rden, Benjamin L., Portland, Ore.; University of Oregon dical School, Portland, 1907; served during World War I; mber of the staff of St. Vincent's Hospital; died October 19, d 72, of acute coronary thrombosis.

tter, Roscoe James ⊕ Clarksburg, W. Va.; Medical College Virginia, Richmond, 1910; served during World War I; affil- d with St. Mary's Hospital; died in the Medical College of ginia Hospital Division, Richmond, October 27, aged 65, coronary thrombosis.

k, Samuel Nelson ⊕ West Grove, Pa.; University of Penn- vania School of Medicine, Philadelphia, 1921; died October aged 55, of coronary thrombosis.

rson, Herbert Seymour ⊕ New York; University and Belle- Hospital Medical College, New York, 1920; died in morial Hospital October 6, aged 56, of coronary occlusion.

st, Woodruff Law ⊕ New York; Trinity Medical College, ronto, Canada, 1897; served with the Canadian Army Medical rps during World War I; died in Roosevelt Hospital October aged 77.

rvis, Otis H., Cheraw, S. C.; Medical College of the State South Carolina, Charleston, 1911; member of the American edical Association; died September 20, aged 62, of myocardial ufficiency.

mes, John R., Mount Vernon, Ind.; Indiana University School Medicine, Indianapolis, 1908; member of the American Medi- Association; died in the Albert Merritt Billings Hospital, icago, October 25, aged 70, of carcinoma of the prostate.

Reynolds, Stephen Dowell, Plattsburg, Mo.; Ensworth Medical College, St. Joseph, 1890; member of the American Medical Association; formerly county coroner; served during World War I; died in St. Joseph's Hospital, in St. Joseph September 25, aged 82, of cerebral hemorrhage.

Rhodes, Joseph Winfield, Hayti, Mo.; University of Louisville (Ky.) Medical Department, 1910; died September 22, aged 69, of pneumonia.

Robicsek, Hans, New York; Medizinische Fakultät der Universität, Wien, Austria, 1920; member of the American Medical Association; on the staff of the New York Polyclinic Medical School and Hospital; died in Mount Sinai Hospital October 24, aged 58, of coronary thrombosis.

Russell, Clyde, Fork Ridge, Tenn.; University of Louisville (Ky.) Medical Department, 1910; member of the Kentucky State Medical Association and the American Medical Association; served during World War I; died September 2, aged 64.

Schoolar, Thornley Edward, Randolph, Ala.; University of Nashville (Tenn.) Medical Department, 1892; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; member of the American Medical Association; died in Selma August 30, aged 82, of coronary occlusion and generalized arteriosclerosis.

Shenfeld, Isaac ⊕ Atlantic City, N. J.; University of Odessa Faculty of Medicine, Russia, 1922; died September 24, aged 59, of acute coronary occlusion.

Shoales, Walter Addison, Norwich, N. Y.; Cornell University Medical College, New York, 1899; member of the American Medical Association; died September 14, aged 78, of cardiac failure.

Staads, Soeren Wilhelm, Los Angeles; German Medical College, Chicago, 1892; died September 20, aged 82.

Steele, Howard Russell, Ashland, Ky.; Cincinnati College of Medicine and Surgery, 1898; died September 1, aged 78, of myocardial failure.

Tauber, Kurt Stephan, Milbank, S. D.; Medizinische Fakultät der Universität, Wien, Austria, 1925; member of the American Medical Association; died in St. Bernard's Providence Hospital August 2, aged 50, of carcinoma of the colon.

Thexton, Louis, Highland Park, Fla.; Rush Medical College, Chicago, 1891; died in Lakes Wales, August 1, aged 85, of coronary occlusion.

Whichard, Murray Parmer ⊕ Edenton, N. C.; University of Maryland School of Medicine, Baltimore, 1910; served as Chowan and Craven counties health officer; died August 28, aged 63, of arteriosclerotic heart disease.

DIED WHILE IN MILITARY SERVICE

Brown, Omar Jesse ⊕ Captain, U. S. Navy, Norfolk, Va.; born in Bombay, N. C., July 30, 1902; George Washington University School of Medicine, Washington, D. C., 1929; commissioned a lieutenant (jg) in the medical corps of the Navy in 1929; served his internship at the Naval Hospital in Washington, D. C.; following various assignments, ashore and afloat, was assigned to malaria control work at Marine Corps installations in North Carolina during 1941-1943 and for outstanding performance of duty during this period was commended by Secretary of the Navy; from 1943 to 1945 was in charge of the Navy's epidemic disease control board at the Bureau of Medicine and Surgery; engaged in similar work in the Pacific during World War II; in addition to the Commendation Ribbon, was awarded the American Defense Service Medal, American Area Medal, Asiatic-Pacific Area Medal, Philippine Liberation Medal, and the World War II Victory Medal; specialist certified by the American Board of Pathology; fellow of the American College of Physicians; staff medical officer of the Fleet Marine Force, Atlantic; died in Georgetown University Hospital, Washington, D. C., July 7, aged 48, of acute renal insufficiency following an injury due to a fall.

GOVERNMENT SERVICES

AIR FORCE

Officers Complete Preventive Medicine Course at Tulane.—The first class of medical officers to complete a course in preventive medicine in an Air Force-sponsored curriculum at a civilian public health school has graduated at Tulane University Medical School, New Orleans. The three-month course covered basic principles of preventive medicine, epidemiology, biostatistics, and sanitation. Among the graduating officers were a number who had recently completed their intern training under Air Force auspices in approved hospitals throughout the United States. The balance of the class were assigned from duty stations.

Dr. Waldo Treuting, professor of public health administration, was director of the course. Among the speakers at the graduation ceremony, were Dr. R. L. Pullen, vice-dean of Tulane University School of Medicine; Brig. Gen. Earl Maxwell, director of professional services for the Air Force Surgeon General; Col. F. L. Duff, chief of preventive medicine, Col. R. B. Jones, chief of medical education division, and Lt. Col. John Rizzolo, chief, preventable diseases branch, office of the Surgeon General.

Aviation Medical Examiner Class.—An aviation medical examiner class, including British and Egyptian medical officers, a Belgian, and 76 U. S. Air Force Medical officers, received diplomas November 24 at graduation exercises at the Air Force School of Aviation Medicine, Randolph Field, Texas. It was the largest aviation medical examiner class since World War II.

The graduation address was delivered by Dr. Chauncey D. Leake, vice-president of the University of Texas and dean of its medical branch at Galveston.

Although the U. S. Air Force officers are not eligible for the rating of flight surgeon until they have completed additional ervice and requirements, the four foreign officers were awarded ight surgeon wings on graduation. This is a customary courtesy extended to foreign officers. The U. S. officers will obtain their Aviation Medical Examiner ratings after they complete a three month supervised preceptorship in the field, conduct 50 physical examinations for flying, and log 25 hours of flying time in military aircraft. As aviation medical examiners their primary duty will be to conduct physical examinations for flying.

Personal.—Col. Oscar S. Reeder has been appointed Chief of the Medical Consultants Division for the Office of Air Force Surgeon General, replacing Col. John F. Dominick, who has been assigned to headquarters of the U. S. Air Force in Europe as Chief of the Professional Services Division.

NAVY

Tulane and Navy Air School Affiliate.—Articles of affiliation between Tulane University of Louisiana and the U. S. Naval School of Aviation Medicine at Pensacola, Fla., were signed on Nov. 16. Tulane graduate students will continue their research activities at the naval school, and naval flight surgeons and other faculty members may earn academic credit from the graduate school of Tulane University for research work. This mutually desirable relationship culminates a number of years of less formal association.

This joining of professional efforts was a highlight of a two-day conference at Pensacola attended by a number of important figures in naval aviation medical research. The panel discussed problems in aviation medical research, selection and training of naval aviators, unusual physiological stresses in flight, and the general problems of aging. The conference was concluded with a cocktail party and banquet at Mustin Beach at Pensacola.

PUBLIC HEALTH SERVICE

Medical Examination Stations in Europe.—Four Public Health Service officers have received overseas assignments recently to medical examination stations of the Division of Foreign Quarantine. Dr. Maurice A. Sislen was sent to Frankfurt, Germany, as Tuberculosis Consultant for the European program and displaced persons and regular immigration program. Drs. R[illegible] M. Farrier and Patrick J. Sullivan have been assigned as medical officers in charge of examination stations in Salzburg, Austria, and Stuttgart, Germany. Dr. Harry F. Colfer is now medical officer in charge of the London station. A total of 15 Public Health Service officers are at these foreign quarantine [illegible] throughout Europe, maintained to examine immigrants and displaced persons applying for visas to enter the United States. These examination stations are located in the American embassies in Paris, London, and Athens, and in the consulates in Liverpool, Naples, Rotterdam, Frankfurt, Munich, Stuttgart, Berlin, Bremen, Hamburg, Salzburg, and Vienna. Examinations of displaced persons are also conducted in nine Resettlement Centers in Bagnoli, Italy; Funk Kaserne, Ludwigsburg, R[illegible] and Wentorf, Germany; Innsbruck, Kapfenburg, Linz, and Villach, Austria; and one ethnic German center in Hanau, Germany. All but one of these centers are staffed by local physicians who have been selected for their experience in psychiatry and the reading of tuberculosis films. They are supervised by Public Health Service officers from the consulates.

Arctic Research Center.—Dr. Edward T. Blomquist has been appointed Medical Officer in Charge of the Arctic Health Research Center of the Public Health Service, at Anchorage, Alaska. He succeeds Dr. Jack C. Haldeman, who has been appointed Chief of the Division of State Grants of the Public Health Service in Washington.

This research center is engaged in basic and applied research on public health problems peculiar to low temperature areas. At present, tuberculosis is the principal disease problem in the territory. Results of studies conducted by the center are made available to agencies and organizations engaged in the improvement of public health in the territory. The center has been in operation for three years.

MISCELLANEOUS

Greek Medical Technicians to Be Trained in United States.—Assistance to improve the public health service of Greece has been extended to bring 11 specialists to this country for advanced study. The United States has been assisting in Greece's efforts to make up the loss of medical research and training suffered during the war. The current project is the third effort in the field on behalf of Greece.

Under the first part of the American aid program, sponsored by the Economic Cooperation Administration's technical assistance program and the United States Public Health Service, 15 experts in public health, tuberculosis control, nursing, sanitary engineering, laboratory research, and hospital construction were sent to Greece. This project is not completed. In the second part of this ECA program, 21 Greek physicians and other public health specialists came to the United States last year for advanced training in the same fields, and also in nutrition and orthopedics. Eighteen of this group have completed their studies and returned to Greece. Three of the 11 additional Greek specialists to be given training in the United States under the extension of the program have begun their studies. The eight other Greek trainees under this project are expected to arrive for their studies after the first of the year.

FOREIGN LETTERS

ALY

ernational Medicosurgical Meetings.—A conference on umatism was held in association with the international medisurgical meetings of Turin, in Acqui, a center of studies of umatology for many years. Numerous Italian and foreign cialists attended the meetings (chairman, Prof. Robecchi).

Nonarticular Rheumatism and Syndrome Due to Fluid Retion.—The report on this subject was presented by Prof. S. C. Copeman of London. This obscure painful syndrome generally called nonarticular rheumatism. Recently some thors have preferred to use the word fibrositis, but this term being abandoned since it suggests that the condition is always rotic in nature, whereas spasm of the muscle fibers and psychoic rheumatism have also been considered as causes of the ndition. Thus, recent electromyographic studies indicate that tain soft, palpable nodules represent the objective manifestan of spasm of muscle fibers. Presumably this condition results m the irritation of the posterior nerve roots by small lesions alized within or around the spinal cord, such as arthritis of intervertebral articulations or a lesion of the disks. These ft and palpable nodules sometimes disappear with heat, masge, or local injections of procaine hydrochloride. With regard the hypothesis of fibrositis, Stockman, in biopsies of painful eumatic nodules, found inflammatory hyperplasia of the fibroaline tissue. These nodules may be the result of infection or auma and the term fibrositis may correctly be given to this rm of nonarticular rheumatism. Professor Copeman observed at, during the course of various febrile diseases, well localized d tender areas may appear. These become painless when the tient's temperature is restored to normal.

With regard to psychogenic rheumatism, it should be pointed t that the appearance of a varying pain is frequent in psychourotics. Generally the pain is not attributable to nodules but pears in the tendinous insertions of certain muscle groups. is possible that, in addition to the aforementioned causes of in, toxemia elicited by a focal infection may cause chronic in. According to the speaker, even the adipose tissues may cit a painful syndrome classifiable as nonarticular rheumatism. considerable importance is the tension syndrome, a painful ndition due to the periodic swelling of the deep adipose tissue certain locations where the fat lobules are confined by indissible fibrous tissue. Because the pain is secondary to fluid tention in the deep adipose tissue, Prof. Copeman tried treat the syndrome by a reducing diet and by stimulation of uresis. Results were poor. He was unable to aggravate the nsion syndrome in previously affected patients by administran of desoxycorticosterone, the hormone that elicits retention sodium and water.

Acroparesthesias.—Prof. F. Françon of Aix-le-Bains reported acroparesthesias, a clinical syndrome characterized by resthesias of the fingers. They appear almost exclusively in omen, during the night, and disappear if special measures are ken. In moderate cases of total acroparesthesia there is a nctional syndrome associated with less important physical anifestations. In the case of the functional syndrome, the atient is awakened almost every night, at about 3 a. m., by an normal sensation localized in one or both upper extremities nd accentuated at their ends (acro).

At first there is paresthesia with numbness, formication, and eedles and pins" at the tip of the fingers and in the palms. he hands are numb and torpid and almost always seem swollen. he movements are hindered. Often pain and sense of constricon are present. The syndrome is in general of short duration. he physical manifestations are rare, because generally there is o vasomotor disturbance; sometimes there is infiltration in the ngers and dilatation of the veins of the hand and of the sublavicular region. Sometimes Raynaud's syndrome, acrocyanosis, leberden's nodes, or Bouchard's nodes are associated. The general condition is completely unimpaired. Laboratory signs and roentgenologic findings are infrequent. Accurate examination of the cervical region is important. The chronic form of the condition if untreated, may last 10 or more years. When treated, response is generally good, because there is a natural tendency to recovery.

Total acroparesthesia and radicular acroparesthesia have long been differentiated clinically. The former attacks the entire hand and all the fingers and is often associated with manifestations involving the supraclavicular region. The radicular forms resemble cervicobrachial neuralgias. In addition to disturbances of the tendon and the periosteal reflexes, there may be motor disturbances: these manifestations reveal that a nerve root has been injured in some part of its pathway. Sometimes there is the so-called scalenus anterior syndrome, and sometimes, a particular syndrome that Bonduelle has called postural syndrome of the supraclavicular fossa. With regard to pathogenesis, the cause of total acroparesthesia is attributed to autonomic imbalance, while radicular acroparesthesia is believed due to prolonged nervous irritation.

Endocrine Osteoses.—Prof. E. Martin from Geneva drew attention to the incidence of the osteopathies and the complexity of the pathogenetic factors of many of them, including deficient secretion of an endocrine gland—thyroid, hypophysis, gonads, or the adrenals. In skeletal diseases of endocrine origin there are often generalized bone lesions. These osteopathies are not easily detected by macroscopic examination of the bone in autopsy, but only by histological examination.

It is important that the endocrine factor be recognized in a generalized osteopathy.

FINLAND

No Bovine Tuberculosis in Finland.—The immunity to bovine tuberculosis enjoyed by Finland at present is the outcome of much laborious research and administrative enterprise. It is probable that this disease was first introduced into the country a century ago with the import of diseased cattle from abroad. In 1891 tuberculin testing of cattle was started, and in 1894 it was found that 25% of 2,219 cattle gave a positive reaction. By 1897 more than 10,000 cattle had been tested, of which 18.6% had given a positive reaction. Bang's system of isolating positive reactors was adopted, at great cost to the owners. In 1904 compulsory measures were introduced for stamping out bovine tuberculosis, and Bang's system was adhered to on the assumption that it would soon prove completely effective. However, between 1916 and 1928 the decline in percentage of positive reactors was disappointingly slow; it ranged between 4% and 7%. The adoption in 1923 of compulsory control of slaughtered cattle led to a disquieting and at first inexplicable discovery. In this year only 0.15% of the cattle examined post mortem showed signs of tuberculosis, whereas 8.5% of the tuberculin-tested cattle gave a positive reaction. Many positive reactors were found at autopsy to show no other sign of tuberculosis, and both veterinary surgeons and owners came to distrust the tuberculin test as an effective aid to the eradication of bovine tuberculosis.

At this stage a veterinary expert, R. Stenius, was called on by the Finnish Ministry of Health to investigate this curious disproportion between tuberculin and postmortem findings, and in 1928 he set to work on his task. In one herd he found only three positive reactors. They were calves, one of which he was allowed to slaughter. The postmortem findings were almost negative, only a few lymph nodes being swollen. Inoculation tests of experimental animals ultimately yielded tubercle bacilli of the human type. This observation led to the discovery that the calf had been in the care of a person who had subsequently died of pulmonary tuberculosis. This clue has led to a whole series of observations associating positive tuberculin reactions in cattle with open tuberculosis in human beings tending them. It was found that, when a tuberculous person had been in contact for

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ho items in these letters are contributed by regular correspondents in e various foreign countries.

some time with a hitherto tuberculin-negative herd, some of its members, calves in particular, began after a few months or years to give positive reactions, usually slight. Such positive reactors showed no macroscopic evidence of tuberculosis, and they tended to become tuberculin-negative some time after contact with a tuberculous person had ceased.

The avian type of tubercle bacillus can also render cattle tuberculin-positive. In such cattle there develops either an inactive and latent tuberculosis or an active form of the disease with the development of definite foci. Veterinary surgeons are now applying tuberculin tests designed to distinguish among the bovine, human, and avian types of infection. A test indicative of a bovine infection calls for radical measures, whereas the demonstration of a human type infection requires only the removal of the infecting person, the cow in question being allowed to eliminate the infection in her own good time. The demonstration of the avian type should lead to the discovery and slaughter of tuberculous fowls.

Although infection of cattle with the bovine type has now been stamped out in Finland, cattle are still being tested with tuberculin, partly on the chance that infection with the bovine type may crop up again sporadically in cattle, partly because tuberculin testing of cattle has proved to be an effective means for discovering hitherto undetected cases of infection of human beings with the human type of bacillus.

Domiciliary Treatment of Scarlet Fever.—An outbreak of scarlet fever in Aabo in the autumn of 1950 gave Dr. Leena Leisti and Dr. Wickström an opportunity to test the efficacy of treatment of the disease in the patients' homes. Their observations are recorded in the journal of the Finnish Medical Association, a publication incorporated with other Scandinavian medical journals in *Nordisk Medicin*. This test was promoted by a threatened shortage of hospital beds and by the comparative mildness of the scarlet fever which was epidemic in Finland at the time. When a new case was reported to the polyclinic of the municipal fever hospital of Aabo, a nurse was sent to the home to take swabs of all its occupants, to give instructions with regard to isolation and disinfection, and to administer penicillin (procaine-penicillin by intramuscular injection). At first four injections were given on different days; later, only three injections. When the number of injections was reduced to two, the results were less satisfactory. Later in the epidemic the administration of penicillin was revised to simplify matters, a single injection being followed by the administration of penicillin by mouth on successive days. This single injection consisted of 150,000 units for children up to 5 years of age and 200,000 for children aged 6 to 10 years. The dosage by mouth was 75,000 units for children up to 5 years of age.

Between the middle of October and the end of December, 1950, there were 203 cases of scarlet fever and 121 cases of streptococcic sore throat treated at home, while at the same time 228 cases of scarlet fever and 65 cases of streptococcic sore throat were treated in hospital. Both the home-treated and hospital-treated cases were kept under bacteriologic control with results indicating no differences of statistical significance between the two. Another statistical comparison was made between the home-treated cases in which penicillin was given by injection alone and the home-treated cases in which combined treatment (penicillin administered by a single injection followed by its oral administration) was given. Here again there was no statistically significant difference. The combined treatment would therefore seem to be the better of the two, because of its greater simplicity. The authors of this report stress the complexity of the problem concerned with Streptococcus carriers, and they hope in the near future to issue a new report on the subject.

The New Medical Faculty at Aabo.—As far back as 1642 there was a medical faculty at Aabo, which at that time was the capital of Finland. The town fell on evil days in 1827, when it was devastated by fire and robbed of its rank as the capital of Finland in favor of Helsingfors, which was henceforth to be the metropolis. On regaining her independence in 1917, the country experienced a revival, which in Aabo took the form of great academic activity. Finland is bilingual, with two widely different languages, Swedish and Finnish. In 1918 a Swedish-speaking university was founded in Aabo, with theological and other faculties, including a natural science faculty and a chemical-technical faculty. Two years later a rival university was founded for the benefit of Finnish-speaking students, who for the first time in the history of the country were enabled to pursue high school studies in their native tongue. The plan to create a medical faculty at the university was held in abeyance for several years for want of adequate financial support. In September, 1940, a government committee set to work to study the creation of a medical faculty centering about the new city hospital, which had been completed in 1938 and which now has more than 500 hospital beds.

On June 8, 1943, the new medical faculty of Aabo University came formally into being. As pointed out by Prof. O. [illegible] enjoys to a certain extent the status, privileges, and independence of a university, but it must in the main be regarded as an institution under the state, which supports the whole of the faculty's budget with the exception of administrative expenses. In addition to the hospital already referred to, the faculty of medicine can draw on the town's fever hospital, maternity hospital, tuberculosis hospital, and mental hospital (which alone has 290 beds) for clinical and teaching material. The faculty has already its own pathology, bacteriology, and serology departments, and accommodation is being provided for the study of pharmacology, public health, and forensic medicine. The preliminary studies in biochemistry, physiology and anatomy must be pursued at the University of Helsingfors until Aabo can deal with these subjects also.

BRAZIL

Accidents in Children.—Drs. Orlano V. Orlandi and [illegible] Almeida, of the Pediatrics Department of the Rio de Janeiro Policlinica Geral, prepared a report on the problem of accidents in children from 5 to 14 years in Rio de Janeiro. In the first part of the report the authors analyze the mortality from accidents, comparing the figures for the years 1931, 1941, and 1950; in the first two years, deaths from accidents occupied third place among the five most important causes of death in the age group 5 to 14 years, while in 1950 they reached first place among the causes of death in the same group. This fact, however, does not express the real situation, because the mortality rate from accidents in that age group remained approximately the same (5.2 per hundred thousand in 1931, 5.8 in 1941, and 5.5 in 1950), while the rate for all other important causes of death declined during the period of time examined. Tuberculosis of the respiratory organs, which ranked first in 1931 with the rate of 6.4 per hundred thousand, declined to 3.8 in 1950; pneumonia and bronchopneumonia, which were the second cause in 1931, with 6.0, declined to 2.7 in 1950; and nephritis declined from 3.0 in 1931 to less than 1.0 in 1950.

The second part of the report is devoted to an analysis of the total 5,643 cases of accidents in children below 15 years of age attended in 1949 at the Carlos Chagas General Hospital, which serves the northwest peripheral district of the city, inhabited by people belonging to the middle and low economic segments of the population. The percentual age distribution of the patients between 0 and 14 years shows a rapid rise from 1.5% for children of less than 1 year, to 5.3% for those of 1 year, 7.0% for those of 2 years, and 8.0% for those of 3 years, and then a slow and regular decline to about 6.0% for those of 14 years. The distribution of the accidents according to the hour of the day shows that about 95% of them occur between 9 a. m. and 8 p. m., the peak of the distribution being between 3 and 7 p. m. The worst day of the week is Saturday, which shows an average of about 17 cases per day (daily average for the year 15.5 cases) as against a minimum of 14.3 for both Thursday and Friday; Sunday is more or less an average day. As for the kind of accident, fall is the most important one (37.5% of the cases), followed by accidents caused by cutting, bruising, and perforating objects (27.4%), biting by animals (16.3%), burns (5.2%), vehicle accidents (5.2%), foreign bodies (3.7%), and poisoning (0.9%). The distribution of the cases according to the kind of surgical lesions presented by the patients shows that sections, contusions, and bruises occupy first place (70.5%), followed by fractures (14.3%), burns (5.2%), dislocations and sprains (1.9%) and crushing and traumatic amputations (0.3%). The 3,064 cases of sections, contusions, and perforations were divided as follows: abdominal limbs 1,520 (677 of the sole of the foot), head and

1,013, thoracic limbs 426, and trunk 105. The animal bites as follows: dog, 870; cat, 27; monkey, 14; and other als, 11. According to the age of the children, the 51 cases isoning were divided as follows: 0-4 years, 45; 5-9 years, d 10-14 years, 4. The ingested substances that caused the cases of poisoning were kerosene and gasoline (21 cases), non medicines (16 cases), chlorine domestic solutions (6), and furniture polishing preparations (2 cases).

rimental South American Leishmaniasis.—All forms of hu- leishmaniasis are found in South America—the generalized sceral infection (kala-azar), the localized form affecting the alone, and the localized form affecting concomitantly the nd mucosa. The etiological agent of the first form, which is ease with capricious geographic distribution, was named mania chagasi by Da Cunha and Chagas, in 1937. The local- forms are considered the same disease, caused by L. brasili- which some authorities believe to be identical with L. ca (Wright, 1903). F. Nery Guimarães, of the Oswaldo Cruz ute, in 1947, reported the visceral infection produced by L. liensis in hamsters. In a new paper, the author reports the ion of five more strains from different sections of Brazil, of them from patients with mucocutaneous lesions ndia), and all of them causing also generalized lesions in ters. In his latest experiments, Guimarães inoculated 61 ters with the six strains taken directly from the patients: ere inoculated intraperitoneally, of which 38 showed vis- ization (92.7%), and 20 subcutaneously, of which 19 showed ralization (95%). The visceralization in hamsters is prin- ly found in the reticuloendothelial system, i. e., in spleen, bone marrow, lymph nodes, but other organs were also itized: skin, testis (vaginal), intestines, lung, brain, striated les. With four of the above referred strains, the author pro- d visceral infections in white mice, although the lesions were o extensive and severe as those provoked in hamsters by ame organism. No lesions were observed in the site of in- tion. The lesions obtained were indistinguishable from those uted to L. donovani. Similarly, both black and agouti mice ed susceptibility to L. brasiliensis. Cotton rats showed only visceral infection. Dr. Guimarães believes that the evidence sceralization of a strain of Leishmania taken directly from cutaneous lesions, although in experimental conditions, rms the opinion of Hoare in the concept of the species of rotozoa of the genus Leishmania which, up to the present, been differentiated on clinicoepidemiological bases.

uction of Schistosoma Cercariae by Soaps and Dyes.—The uction of cercariae in water is one of the prophylactic meas- to control schistosomiasis, since infestation is brought about e contact of the skin with water containing larvae in their swimming stage. Drs. Genesio Pacheco and Geth Jansen, e Oswaldo Cruz Institute, experimented with several sub- es to find the best means of achieving such destruction. report that infested snails (Planorbis olivaceus) in the stage liminating Schistosoma mansoni cercariae were placed in vater and exposed to sunlight in order to stimulate elimina- When there was a sufficient number of larvae to permit easy tion under the microscope, the substance to be tested was d and the alterations observed, the larvae being considered only when completely immobilized. The experiments were e under diffused daylight. In the first series of experiments, uthors tested sodium oleate and sodium ricinoleate in 10% ion, which caused complete immobilization after a period me inversely proportional to the concentration (about 24 s with a 1:1,000 solution and only 10 minutes with 1:50). dine orange and brilliant green were tested in the second s of experiments, the former dye immobilizing the larvae minutes with 1:50,000, and the latter after six minutes with 00. The third series of experiments was carried out with association of a soap and a staining material, in order to rtain whether this could increase the larvicidal action. In fact, mixture of sodium oleate (10% solution) with acridine 000) increased the larvicidal activity enormously—the im- ilization of the cercariae was obtained with the concentration :500,000 after 10 minutes, and with the concentration of 00,000 after 17 minutes. The mixture is effective even if during 24 hours at the laboratory temperature, but the lar- lal properties are slightly reduced in the presence of organic ter as was verified by the addition of 20% of horse serum.

Murine Encephalomyelitis.—Many workers in several countries are studying virus diseases of animals as a means of advancing our knowledge about virus diseases of man. In Rio de Janeiro, Drs. A. Borges Fortes and Herminio Linhares, of the National Service of Mental Diseases, reported on a new series of studies on natural and experimental cases of murine encephalomyelitis and described some important pathologic features. They observed an extensive acute and subacute inflammatory process, chiefly of the leptomeninges, the choroid plexuses, and the encephalic axis, characterized by infiltration of round cells, with a diffuse perivasculitis and some granulomas. Considerable exudation in the lateral ventricles in the inoculated animals was also noticed. Evident inflammatory phenomena followed by degeneration and atrophy of substantia grisea of the spinal cord were also observed, more noticeable on the anterior cornu. The encephalic lesions found in mice, principally those of the experimental form of Theiler's encephalomyelitis, are similar to those of acute lymphocytic choriomeningitis in man. The observed lesions of the spinal cord in this murine disease are similar to those which have been described in acute anterior poliomyelitis in man.

ARGENTINA

Congress on Cancer.—The first Argentine Congress on Cancer was held in Buenos Aires, September 24-27, under the presidency of Dr. Abel Canonico and sponsored by the Ministry of Public Health. It was attended by specialists from the United States, Chile, Uruguay, Paraguay, Bolivia, and Spain, who had been invited by the Argentine government. Several communications were presented, and there were surgical demonstrations.

From September 26 to 29 the first National Conference on Cancer was held, organized by the Ministry of Public Health, which established a unified and coordinated plan against cancer in the Argentine republic. A commission of pathologists was also appointed for the task of establishing uniformity in nomenclature of tumors and the diseases associated with this development. Improvement of present knowledge on cancer through postgraduate courses was recommended to stimulate investigations and organize an extensive sanitary campaign all over the country.

Pulmonary Tuberculosis Mortality Rate.—In 1918 there were in Argentina 15,149 deaths due to pulmonary tuberculosis. This was the highest rate reported; the rate remained high until 1938 and then decreased progressively to 1948. During 1948 there were only 9,470 deaths due to this disease.

In 1918 there were 174 deaths per 100,000 persons. In 1948 there were only 57 deaths per 100,000 persons. The general mortality rate reached its maximum in 1919 (17.5 deaths per 100,000 persons). In 1948 the death rate was 9.9. In Buenos Aires this reduction was greater. The death rate in 1918 was 245 per 100,000 persons.

Spiritualism.—Spiritualism has never been officially approved and has not been allowed as a therapeutic measure. Recently physicians were surprised by an announcement of the Ministry of Public Health in which it was established that the Division of Social Psychopathology must register the member societies of the Argentine Association of Spiritualists and accept them. A monthly report of members, mediums, associates, and meetings must be forwarded. Persons acting as mediums should have a certificate of technical ability granted by the Division of Social Psychopathology of the Ministry of Public Health after a psychologic, metapsychologic, and psychiatric examination.

Malaria Control.—After the employment of 102 tons of DDT and 2,000 tons of kerosene (as solvent) malaria practically disappeared in the zones of the country in which this disease was endemic. Up to 1947, there were about 300,000 cases of malaria per year, according to the report by Dr. Carlos A. Alvarado in the first Argentine Epidemiological Meetings. After three years of prophylaxis, only 653 cases were observed in 1950, with no cases of first infection. Eighty-four teams (500 persons) carried out the task of spraying DDT and kerosene in 170,000 buildings. Dr. Alvarado claimed that malaria was now neither a social nor a sanitary problem in the northern Argentina.

CORRESPONDENCE

MEDICAL-LEGAL ASPECTS OF ARTIFICIAL INSEMINATION

To the Editor:—I was greatly interested in your extensive review of the medicolegal aspects of artificial insemination. However, I was disappointed to see no reference made to the fact that the Medical Jurisprudence Society of New York City had discussed the medicolegal aspects of this subject on March 13, 1944, and again on Feb. 9, 1948. The latter was published in *Human Fertility* (**13:**37 [June] 1948). The former presentation is appearing in the proceedings of the Medical Jurisprudence Society shortly to be published by Charles C Thomas, Publisher. By invitation, I presented the subject on both occasions.

I must disagree with certain provisions of the consent form of L. J. Regan in THE JOURNAL (**147:**253 [Sept. 15] 1951), namely: "Nor any other information concerning said donor's race, nationality, characteristics, qualities, or any other information whatsoever concerning said donor." I believe that a couple have the right to know the nationality, race, characteristics, education, and religion of the donor if they request such information.

I believe that it would be very impractical for a physician to destroy confidential records regarding a donor and the patient treated, and I cannot agree with the paragraph: "We further agree that following the said insemination the said Dr. . . . shall destroy all information and records which he may have as to the identity of said donor it being the intention of all parties that the identity of said donor shall be and forever remain anonymous." My reason for insisting that it is advisable to keep such records is to assure whenever possible the same donor for second or third requests for artificial insemination. In my series of 200 patients treated by donor artificial insemination, 36% requested a second pregnancy and 5% requested a third pregnancy. The patients have always requested the same donor if possible. The reason is self-evident. Furthermore, as mentioned in your article, the Sanitary Code of New York City demands that records of the donor be kept.

I should like to plead for physicians to avoid the use of so-called semen donor services from laboratories which furnish semen on demand from sources unknown to the physician. This practice should be declared illegal, as the hereditary background, physical appearance, nationality, religion, education, and complexion cannot be satisfactorily matched by such a method. Finally, many physicians are unaware of the Rh factor of the donor and may make use of an Rh positive donor's semen to impregnate an Rh negative woman.

MARIE PICHEL WARNER, M.D.
20 West 86th St., New York 24.

The above letter was referred to the author of the article, who has written as follows:

To the Editor:—The difficulty inherent in the production of the suggested form, or of any form purporting to authorize artificial insemination, is obvious, since there is a total lack of statutory law and, practically, of case law. The terms of any such form are evidently subject to criticism, since, at best, they rest on opinion.

With its present unestablished legal status, even if not specifically contrary to law, the practice of artificial insemination with a donor other than the husband is hazardous to the physician who performs it—hazardous because of the possibility of involvement in litigation.

Inherent in the problem, there are at this time many undetermined factors, among them questions of inheritance, support, right of control, adultery, rights of the donor's spouse, and standards of care respecting selection and fitness of donor. The provision of the Sanitary Code of the City of New York referred to is essentially a public health regulation requiring that certain examinations be made of donors.

The suggested form might, although it is not claimed it will, afford some protection to a physician who makes it. A portion of its protective potential would, in my opinion, be lost if it is modified as suggested by Dr. Warner.

LOUIS J. REGAN, M.D.
1925 Wilshire Blvd., Los Angeles

N.P.C. GIFT TO EDUCATION FOUNDATION

Elmer L. Henderson, M.D.
Office of the President
American Medical Education Foundation
535 North Dearborn Street
Chicago, Illinois

Dear Dr. Henderson:

The members of the Board of Trustees of N.P.C., met in Atlantic City on June 10th—all members present, voted to place at the disposal of the American Medical Education Foundation the residue of funds in the treasury of the National Physicians Committee. This residue was to result from the payment of all obligations and certain other commitments made by the Board. After all payments were made there was a balance of $11,222.94. A check in this amount is attached.

During the later years of the operation of N.P.C. you were thoroughly familiar with its aims, purposes and its operations. Without detracting in any way from subsequent actions we it can be safely said that the continuous aggressive and unremitting efforts of the N.P.C., over a period of nearly ten years made possible preserving the independence of the profession during a period of stress. These activities made acceptable subsequent assessment on the entire membership which, in turn, led to more comprehensive efforts and more determined resistance.

You personally are thoroughly familiar with the incidents and circumstances that led the Board of Trustees of the N.P.C. to the decision to remove itself from the field of operations and liquidate its assets. We, speaking for the Board of Trustees of the N.P.C., are pleased that we were able, in a time of emergency, to render valuable aid and that its operations were so conducted as to make possible placing at your disposal the contribution enclosed herewith. Legal requirements involved in the final dissolution of the National Physicians Committee precluded the possibility of earlier presentation of this contribution.

NATIONAL PHYSICIANS COMMITTEE FOR E.M.S.
EDWARD H. CARY, Dallas, Chairman
WILLIAM F. BRAASCH, Secretary
Rochester, Minn.

ECTOPIC URETER

To the Editor:—In answer to a plea in THE JOURNAL (130:1 [April 20] 1946) for awareness of the possibility of ectopic ureter in cases of urinary incontinence, I am reporting the first case of this condition diagnosed in Brazil. The patient, a 20-year-old woman, had a supernumerary left ureter opening into the vestibule. Heminephrectomy resulted in a cure. Details of the case were described in *The Journal of the International College of Surgeons* (**15:**715 [June] 1951).

E. V. CANNABRAVA
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São Paulo, Brazil.

ostgraduate Continuation Courses for Physicians

Compiled by the Council on Medical Education and Hospitals for the Period Jan. 1, 1952 to July 15, 1952

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ALLERGY		
County Graduate School of Medicine, 427 S. Honore Chicago 12, Ill.	Six Month Personal Course in Allergy	By appointment, 1st of every month	$500.00
	One Month Personal Course in Allergy	By appointment, 1st of every month	200.00
	One Month Personal Course in Allergy and Related Conditions	By appointment, 1st of every month	200.00
	Personal Course in Allergy and Related Conditions	April 9, 10 sessions, part time	125.00
ersity of Michigan Medical School, Ann Arbor, Mich. t: University Hospital	Allergy	May 5-9, full time	50.00
ne University College of Medicine, 1512 St. Antoine St., roit, Mich. t: Receiving Hospital	Allergy Clinic and Conference	March, part time	25.00
ican College of Allergists, 401 LaSalle Medical Bldg., neapolis 2, Minn. t: Hotel William Penn, Pittsburgh, Pa.	Graduate Instructional Course in Allergy	April 4-6, full time	35.00
	Eighth Annual Congress American College of Allergists	April 7-9, full time	None
rsity of Minnesota Center for Continuation Study, neapolis 14, Minn.	Allergy and Hematology for General Physicians	May 15-17, full time	25.00
bia University, 630 W. 168th St., New York 32, N. Y. t: Mt. Sinai Hospital	Allergy (Medicine PM 30)	February 25-March 17, part time	40.00
t: Roosevelt Hospital	Allergy (Medicine PM 80)	May 12-23, full time	120.00
Committee on Post-Graduate Education, 1313 Bed- d Ave., Brooklyn 16, N. Y. t: Kings County Hospital	Allergy	April, 9 weeks, part time	20.00
t: Beth El Hospital	Allergy	April, 9 weeks, part time	30.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Allergy	Arranged, 2 months, part time	50.00
York University Post-Graduate Medical School, 477 st Ave., New York 16, N. Y. t: University Hospital	513-A Allergy	April 18-June 6, part time	35.00
	5415-B Allergy	March 17-28, full time	150.00
ican College of Physicians, 4200 Pine St., Philadelphia, a. t: Washington University School of Medicine	Allergy	March 3-7, full time	30.00 A.C.P. mbrs. 60.00 non mbrs.
	ANATOMY		
ge of Medical Evangelists, Boyle and Michigan Aves., s Angeles 33, Calif. t: Scott House and Evans Hall	Surgical Anatomy — Demonstration and Lectures — Thorax, Abdomen and Pelvis	January 16-April 9, part time	50.00
	Surgical Anatomy — Demonstration and Lectures — Head and Neck	April 16-June 4, part time	35.00
	Surgical Anatomy—Dissection, Demonstration and Lectures—Thorax, Abdomen, and Pelvis	January 14-April 9, part time	125.00
	Surgical Anatomy—Dissection, Demonstration and Lectures — Head and Neck	April 14-June 4, part time	75.00
ersity of California School of Medicine, University Ex- sion, 10815 Le Conte Ave., Los Angeles 24, Calif.	Surgical Anatomy	February 13, 15 weeks, part time	75.00
ersity of Colorado School of Medicine, 4200 East Ninth e., Denver 20, Colo.	Surgical Anatomy	March 24-June 9, part time	41.00 for residents 95.00 for non-residents
k County Graduate School of Medicine, 427 S. Honore , Chicago 12, Ill.	Anatomy of the Extremities of the Cadaver	March 12, 10 sessions, part time	125.00
ersity of Maryland School of Medicine, 29 S. Greene , Baltimore 1, Md.	General Anatomy	Arranged, full or part time during academic year	Arranged
	Surgical Anatomy	Last week in January, 15 weeks, part time	150.00
vard Medical School, Courses for Graduates, 25 Shat- ck St., Boston 15, Mass.	Surgical Anatomy	March 3-April 25, part time	200.00[6]
	Neuro-anatomy	June 2-21, full time	100.00[6]
ersity of Michigan Medical School, Ann Arbor, Mich.	Anatomy	February 14-May 29, part time	65.00
ne University College of Medicine, 1512 St. Antoine St., troit, Mich.	Regional Anatomy	March 10-June 7, part time	50.00
x County Medical Society, 38-40 Clinton St., Newark, J. At: Newark City Hospital	Surgical Anatomy of the Chest	12 weeks, part time	150.00

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eferences will be found on page 1489

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course
	ANATOMY—Continued	
Cornell University Medical College, 1300 York Ave., New York 21, N. Y.	Surgical Anatomy	June 1-30, full time
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Applied Anatomy for the General Surgeon	Arranged, part time
	Anatomy of the Thorax	Arranged, part time
	Anatomy of the Abdomen	Arranged, part time
	Applied Anatomy for the Otolaryngologist	Arranged, part time
	Applied Anatomy of the Urogenital System	Arranged, part time
	Applied Anatomy for the Anesthetist	Arranged, part time
	Anatomy for the Orthopedic Surgeon	Arranged, part time
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Surgical Anatomy	Arranged, 2 weeks, part time
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.	411-B Anatomy of the Head and Neck	March 24-June 13, part time
	413-C Anatomy of the Abdomen	March 24-June 13, part time
	414-B Anatomy of the Female Pelvis	March 24-June 13, part time
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	The Hand	July 16-27, full time
	ANESTHESIOLOGY	
University of Arkansas, Office of Postgraduate Medicine, Little Rock, Ark.	Postgraduate Course in Anesthesiology	April 3, 1 day
College of Medical Evangelists, Boyle and Michigan Aves., Los Angeles 33, Calif. At: White Memorial Hospital	Anesthesiology	Every two months, full time
St. Francis Hospital, 114 Woodland St., Hartford 5, Conn.	Anesthesiology	Continuously
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Anesthesiology	February 15, 6 months
	Practical Two Week Course in Spinal and Intravenous Anesthesia	By appointment, every two week
	Practical One Month Course in Nitrous Oxide and Ether Anesthesia	By appointment, 1st of every m
	Practical One Month Course in Ether, Nitrous Oxide, Ethylene and Cyclopropane Anesthesia	By appointment, 1st of every m
	Practical Two Week Course in Endotracheal Anesthesia	By appointment, every two week
University of Kansas Medical Center, Kansas City, Kan.[1]	Anesthesiology	April 14-16, full time
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Review in Anesthesia	Arranged, full time
Boston University School of Medicine, 80 E. Concord St., Boston, Mass. At: Massachusetts Memorial Hospitals	Postgraduate Course in Clinical Anesthesiology [2]	Arranged, 3 months, full time
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Anesthesiology for General Physicians	March 24-26, full time
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Newark City Hospital	Therapeutic and Diagnostic Nerve Blocking	February 6, 10 weeks, part time
New York State Society of Anesthesiologists, 137 W. 11th St., New York 11, N. Y. At: Various Centers throughout the State	Postgraduate Training in Anesthesia	Continuously, hours arranged
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y. At: Jewish Hospital	Anesthesiology	April, 6 weeks, part time
At: St. Catherine's and Kings County Hospitals	Diagnostic and Therapeutic Nerve Blocking (Fundamental Course)	April, 10 weeks, part time
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Clinical Anesthesiology	Arranged, 3 months, full time
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Applied Anesthesia	January and April, 3 months, full time
	Anesthetic Technic	January and April, 6 weeks, full time
	Regional and Spinal Anesthesia	January and April, 6 weeks, full time
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue Hospital	512-C Regional Anesthesiology	May 5-16, full time
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa. At: Graduate Hospital and Private Offices	Regional Anesthesia and Anatomy	May 26-June 6, full time
	Segmental Neuralgias, Relief by Regional Anesthesia	Arranged, 3 weeks, part time
	ARTHRITIS	
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Arthritis and Allied Rheumatic Diseases	April 4, 10 sessions, part time
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y. At: Kings County Hospital	Arthritis	April, 8 weeks, part time
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue and University Hospitals	542-A Arthritis and Allied Rheumatic Disorders	April 15-June 3, part time
	BACTERIOLOGY	
University of California School of Medicine, San Francisco 22, Calif.	Microscopy and Photomicrography	January 17-June 5, part time
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Review of Microbiology (Bacteriology) a Basic Course	March 13, 5 sessions, part time
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Microbiology Seminar	Quarterly, part time
	Parasitology and Medical entomology	March 10-June 7
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Bacteriology	Arranged, 3 months, part time
	Immunology	Arranged, 6 weeks, part time
	Parasitology	Arranged, 6 weeks, part time
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.	432-A Viruses and Virus Diseases	March 31-June 6, full time

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	BASIC SCIENCE		
ge of Medical Evangelists, 312 N. Boyle Ave., Los geles 33, Calif.	Basic Science Course in Internal Medicine [3]	September 29, 1952 through June 5, 1953, full time	$800.00
	Basic Science Course in Otolaryngology [3]	September 29, 1952 through June 5, 1953, full time	800.00
hwestern University Medical School, 303 E. Chicago e., Chicago 11, Ill.	Orthopaedic Pathology, Anatomy, Physiology and Biochemistry	January-June, full time	600.00
ersity of Michigan Medical School, Ann Arbor, Mich.	Basic Science [4]	October, 1952, 9 months, full time	710.00 Surgery 910.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y. At: Medical School and University Hospital	Basic Science Course		
	Bacteriology	January 7-12	Not given
	Developmental Anatomy	January 14-19	
	Biophysics	January 21-February 2	
	Endocrinology	February 4-16	
	Biochemistry, Pharmacology, Physiology	February 18-June 7	
	Surgery	February 18-April 12	
	Anatomy	April 14-June 7	
ersity of South Dakota School of Medicine, Vermillion, D.	Basic Science for Candidates for Specialty Boards	February 4-June 6, 1 to 2 semesters	75.00
hwestern Medical School of the University of Texas, 1 Oak Lawn Ave., Dallas, Texas	Basic Science	Arranged, 36 sessions	None
	BIOCHEMISTRY		
ne University College of Medicine, 1512 St. Antoine St., troit, Mich.	Physiological Chemistry Seminar	Quarterly, part time	15.00
Committee on Post-Graduate Education, 1313 Bedford e., Brooklyn 16, N. Y. At: Jewish Hospital	Clinical Biochemistry	April, 10 weeks, part time	80.00
	CARDIOVASCULAR DISEASE		
ge of Medical Evangelists, Boyle and Michigan Aves., s Angeles 33, Calif. At: Osler House	Cardiology	January 8-March 11, part time	50.00
ersity of California School of Medicine, San Francisco Calif. At: University of California Hospital	Cardiovascular Diseases	April 28-May 3, part time	Not given
County Graduate School of Medicine, 427 S. Honore , Chicago 12, Ill.	Personal Course in Cardiovascular Diseases	April 9, 10 sessions, part time	80.00
ana University School of Medicine, Indianapolis, Ind.[5]	Annual Symposium on the Heart	February 5, 1 day	None
ne University School of Medicine, 1430 Tulane Ave., New leans, La.	Review in Cardiology	Arranged, 2 weeks, full time	100.00
ard Medical School, Courses for Graduates, 25 Shatk St., Boston 15, Mass. At: Beth Israel Hospital	Cardiology 1	January 28-May 10, full time	500.00 [6]
At: Peter Bent Brigham Hospital	Clinical Heart Disease	July 1-31, full time	200.00 [6]
s College Medical School, Postgraduate Division, 30 nnet St., Boston 11, Mass.	Cardiology	March 17-21, full time	40.00 [6]
ersity of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Diseases of the Heart	March 17-22, full time	50.00
ersity of Minnesota Center for Continuation Study, nneapolis 14, Minn.[7]	Cardiovascular Diseases for General Physicians	February 14-16, full time	25.00
x County Medical Society, 38-40 Clinton St., Newark, J. At: Seton Hall University Campus	Cardiac Arrythmias	February 4, 10 weeks, part time	75.00
At: Newark City Hospital		March 7, 10 weeks, part time	100.00
Francis Sanatorium for Cardiac Children, Roslyn, N. Y.		May 19-30, 10 days, full time	100.00
	Heart Disease		
mbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Cardiovascular Diseases (Medicine PM 31)	January 25-March 22, part time	125.00
	Clinical Cardiology (Medicine PM 29)	February 6-April 19, part time	45.00
	Bedside Clinics in Heart Disease (Medicine PM 46)	February 18-April 7, part time	30.00
	Bedside Diagnosis and Treatment of Heart Disease with Special Emphasis on Measurements of the Circulatory Dynamics (Medicine PM 48)	February 19-April 22, part time	45.00
At: Montefiore Hospital	Cardiology II (Medicine PM 62)	January 29-June 3, part time	150.00
	Cardiology III (Medicine PM 63)	February 12-June 3, part time	200.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Cardiology	Arranged, 20 weeks, part time	150.00
t Committee on Post-Graduate Education, 1313 Bedford e., Brooklyn 16, N. Y. At: Coney Island Hospital	Cardiovascular Disease	April, 6 weeks, part time	20.00
At: Jewish Sanitarium and Hospital for Chronic Disease	Clinical Ballistocardiography	April, 8 weeks, part time	20.00
York Polyclinic Medical School and Hospital, 345 W. th St., New York 19, N. Y.	Diagnosis and Treatment of Diseases of the Heart	Arranged, 3 weeks, part time	75.00
York University Post-Graduate Medical School, 477 rst Ave., New York 16, N. Y. At: University Hospital	544-A Cardiology	April 17-June 5, part time	40.00
At: Bellevue and University Hospitals	5425-A Cardiology	June 30-July 25, full time	250.00
	5427-A Auscultation of the Heart	February 18-20, full time	85.00
man Gray School of Medicine of Wake Forest College, inston-Salem, N. C.	Cardiovascular Diseases	March 25-27, full time	..... [37]
Cleveland Area Heart Society, 417 Public Square Bldg., leveland 13, Ohio At: Western Reserve University Medical School	The Cardiac Resuscitation Course	Jan. 18-19, Feb. 15-16, March 14-15, April 18-19, May 23-24, June 20-21	40.00 [8]
ersity of Pennsylvania Graduate School of Medicine, hiladelphia 4, Pa.	Cardiology	January and April, part time, 8 weeks	80.00
arry Medical College, Nashville, Tenn.	Refresher Course in Cardiovascular Disease	May 5-9, full time	80.00
ersity of Vermont College of Medicine, Burlington, Vt.	Auscultation of the Heart and Phonocardiography	Arranged, 10 hours	3.00
	Modern Aspects of Cardiovascular Disease and Treatment Seminar	Arranged, 10 hours	None

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course
	DERMATOLOGY AND SYPHILOLOGY	
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif. At: Osler House	Dermatology	January 2-March 19, part time
University of California School of Medicine, San Francisco 22, Calif. At: University of California Hospital	Clinical Science as Applied to General Medicine: Part IV—Dermatology	February 7-April 24, part time
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Twelve Month Clinical Course in Dermatology	By appointment, full time
	Two Week Intensive Course in Dermatology	May 5, full time
	Clinical Refresher Course in Dermatology	Every Monday, 2 weeks or more, full time
	Personal Course in Dermatology	April 3, 10 sessions, part time
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Clinical Dermatology, Refresher Course in Diseases of the Skin for the General Practitioner	April, 1 week, full time
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Dermatology and Syphilology 2	Arranged, 1-9 months, full time
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Dermatology II	April 7-11, full time
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich. At: Receiving Hospital	Seminar in Dermopathology	Quarterly, part time
	Seminar in Dermatology	Quarterly, part time
	Deep Mycoses	March, 12 weeks, part time
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Dermatology for General Physicians	February 28-March 1, full time
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Newark City Hospital	Dermatology	*January 17, 12 weeks, part time*
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Montefiore Hospital	Common Skin Diseases and Treatment (Dermatology PM 60A)	March 3-May 26, part time
At: Mt. Sinai Hospital	Venereal and Skin Diseases (Dermatology PM 30)	March 12, 17 and 19, part time
	Venereal and Skin Diseases (Dermatology PM 32)	May 13-23, part time
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y. At: Kings County Hospital	Dermatology for the General Practitioner	April, 8 weeks, part time
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Dermatology and Syphilology for the General Practitioner (Seminar)	Arranged, 5 days, full time
	Dermatology and Syphilology for Specialists (Seminar)	Arranged, 5 days, full time
	Dermatologic Histopathology (Seminar)	Arranged, 5 days, full time
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Skin and Cancer Unit University Hospital	523-A Symposium on Dermatology and Syphilology (for Dermatologists)	May 19-23, full time
	482-A Occupational Dermatoses	January 28-February 8, part tim
University of Texas Postgraduate School of Medicine, 207-A Hermann Professional Bldg., Houston, Texas At: Robert B. Green Memorial Hospital	Dermatology	January 8-April 1, part time
	DIABETES	
Delaware Academy of General Practice, Education Committee, 1305 New Road, Wilmington 5, Del. At: Veterans Administration Hospital, Wilmington	Diabetes and Associated Metabolic Disorders	January 9, 10 weeks, part time
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Medical and Surgical Diabetes	March 19, 10 sessions, part time
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Diabetes	March 10-12, full time
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Course in Nutrition and Diabetes (Medicine PM 38)	March 6-20, part time
	ELECTROCARDIOGRAPHY	
University of California School of Medicine, San Francisco 22, Calif. At: University of California Hospital	Electrocardiography	April 28-May 3, full time
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Electrocardiography and Heart Disease	February 13, 10 sessions, part tim
	Two Week Personal Course in Electrocardiography and Heart Disease	March 17, July 14, full time
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Electrocardiographic Interpretation	February 6-April 23, part time
Indiana University School of Medicine, Indianapolis, Ind.	Course in Electrocardiography	February 14-15, full time
University of Kansas Medical Center, Kansas City, Kan.[1]	Electrocardiography	March 10-15, full time
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Electrocardiography for General Physicians	January 21-25, full time
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Intensive Course in Advanced Electrocardiography (Medicine PM 42)	January 14-19, full time
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y. At: Jewish Sanitarium and Hospital for Chronic Diseases	Advanced Cardiology and Electro-[illegible]	April, 8 weeks, part time
At: *Beth El Hospital*	[illegible]	April, 6 weeks, part time
At: Jewish Hospital	[illegible] General *Practitioner*	April, 6 weeks, part time

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ELECTROCARDIOGRAPHY—Continued		
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Electrocardiography	Spring, 2 weeks, part time	$100.00
York Polyclinic Medical School and Hospital, 345 W. th St., New York 19, N. Y.	Electrocardiographic Interpretation	Arranged, 2 weeks, part time	75.00
York University Post-Graduate Medical School, 477 irst Ave., New York 16, N. Y. At: University Hospital	[illegible] B Clinical Electrocardiography [illegible]	April 17-June 5, part time March 24-28, full time	40.00 50.00
versity of Oklahoma School of Medicine, Oklahoma City, kla.	[illegible]	March 3-8, full time	60.00
versity of Oregon Medical School, 3181 S. W. Sam Jackn Park Rd., Portland 1, Ore.	Electrocardiography	May 19-23, full time	50.00
versity of Vermont College of Medicine, Burlington, Vt.	Electrocardiography	Arranged, 20 hours, part time	5.00
	ENDOCRINOLOGY		
lege of Medical Evangelists, Boyle and Michigan Aves., os Angeles 33, Calif. At: Los Angeles County Hospital	Endocrinology	April 1-May 20, part time	30.00
versity of California School of Medicine, San Francisco , Calif. At: University of California Hospital	Clinical Endocrinology and Metabolic Diseases including the Non-Endocrine Application of Endocrine Substances	January 28-February 1, full time	Not given
lical College of Georgia, Augusta, Ga.	Eighth Postgraduate Course in Endocrinology	May 26-31, full time	60.00
hael Reese Hospital Postgraduate Medical School, 29th t. and Ellis Ave., Chicago 16, Ill.	Diseases of the Endocrines, Physiology and Diagnostic Methods	May or June, 2 weeks, full time	100.00
versity of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Metabolism and Endocrinology	March 31-April 4, full time	50.00
versity of Mississippi School of Medicine, University, iss.	Chemistry of Enzymology Biochemistry of Hormones Biochemistry of Steroids	By appointment, 18 weeks, part time By appointment, part time By appointment, 18 weeks, part time	Not given 55.00 Not given
ex County Medical Society, 38-40 Clinton St., Newark, . J. At: Seton Hall University Campus, South Orange	Endocrinology	January 7, 6 weeks, part time	40.00
umbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Endocrinological Diseases (Medicine PM 39)	January 24-February 14, part time	30.00
nt Committee on Post-Graduate Education, 1313 Bedford ve., Brooklyn 16, N. Y. At: Jewish Hospital	Disorders of the Endocrine System	April, 6 weeks, part time	40.00
At. Jewish Sanitarium and Hospital for Chronic Diseases	Medical and Gynecologic Endocrinology	April, 4 weeks, part time	20.00
At: Maimonides Hospital	Metabolic Endocrinology	April, 10 weeks, part time	30.00
At: Beth El Hospital	Endocrine Disorders in Children and Adolescents	April, 8 weeks, part time	20.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Endocrinology	Spring, 2 weeks, part time	100.00
York University Post-Graduate Medical School, 477 irst Ave., New York 16, N. Y. At: University Hospital	519-A Endocrinology	April 18-June 6, part time	40.00
versity of Vermont College of Medicine, Burlington, Vt. At: Bishop DeGoesbriand Hospital	Endocrine Disease and Therapy	Arranged, 10 hours	None
	ENDOSCOPY		
k County Graduate School of Medicine, 427 S. Honore t., Chicago 12, Ill.	Ten Day Practical Course in Cystoscopy	Jan. 7, 21, Feb. 4, 18, March 3, 17, 31, April 14, May 12, 26, June 9, full time	150.00
versity of Illinois College of Medicine, 1853 W. Polk St., hicago, Ill.	Bronchoesophagology	February and May, 2 weeks, full time	150.00
rvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Endoscopy	Arranged, 3 months, full time	375.00*
umbia University, 630 W. 168th St., New York 32, N. Y. At. Columbia Presbyterian Medical Center	Gastroscopy (Medicine PM 2)	Arranged, 2 months, part time	250.00
nt Committee on Post-Graduate Education, 1313 Bedford ve., Brooklyn 16, N. Y. At: Greenpoint Hospital	Gastroscopy	April, 6 weeks, part time	30.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Gastroscopy Gastroscopy (Advanced) Peritoneoscopy	Arranged, 2 weeks, part time Arranged, 5 weeks, part time Arranged	200.00 200.00 100.00
nple University Medical School, 3400 N. Broad St., Philadelphia 40, Pa.	Bronchoesophagology	February 11-22, full time	250.00
iversity of Pennsylvania Graduate School of Medicine, hiladelphia 4, Pa.	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	Middle two weeks of January and first two weeks of June, full time	250.00
	FRACTURES		
ok County Graduate School of Medicine, 427 S. Honore t., Chicago 12, Ill.	Clinical Course in Fractures Special Course in Fractures Two Week Intensive Course in Fractures and Traumatic Surgery	1st of every week, 1 or 2 weeks, full time March 19, 10 sessions, part time February 4, June 16, full time	50.00 1 week 100.00 2 weeks 125.00 125.00
nt Committee on Post-Graduate Education, 1313 Bedford ve., Brooklyn 16, N. Y. At: Kings County Hospital	Fractures	April, 10 weeks, part time	20.00
w York Medical College, Flower and Fifth Ave. Hospitals, 0 E. 106th St., New York 29, N. Y.	Fractures and Allied Trauma	Spring, 4 weeks, full time	200.00
	GASTROENTEROLOGY		
iversity of Southern California, Division of Medical Extension Education, 1200 N. State St., Los Angeles 33, Calif. At: San Diego, Calif.	Modern Trends in Gastroenterology	January 4-February 8, part time	50.00
ok County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Gastroenterology Two Week Course in Gastroenterology Advanced Course in Gastroscopy and Gastroenterology	March 26, 10 sessions, part time May 19, full time March 10, June 23, 1 week, full time	100.00 100.00 Not given
iversity of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Diseases of Gastro-Intestinal Tract	April 14-18, full time	50.00

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course
	MEDICINE, GENERAL—Continued	
College of Medical Evangelists, Boyle and Michigan Aves., Los Angeles 33, Calif. At: Osler House	Varicose Veins	March 4-April 8, part time
Hollywood Academy of Medicine, 4759 Hollywood Blvd., Los Angeles 27, Calif. At: Hollywood Roosevelt Hotel	Scientific Meetings	2d Thursday evening of each month except July, August and December
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5, Calif. At: San Fernando Branch and East Los Angeles Branch	Practical Medicine Lecture Series	Continuously, part time, 1½ hour a week
University of California School of Medicine, San Francisco 22, Calif. At: Mt. Zion Hospital	Program for General Practitioners	March 10-14, full time
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver 20, Colo.	Applied Medical Science General Medicine for General Practitioners	January 2-June 9, full time March 20-22, full time
At: Memorial Hospital, Cheyenne, Wyo.	Lecture Series for General Practitioners	February 20-March 26, part time
George Washington University School of Medicine, 1335 H St., N. W., Washington, D. C. At: George Washington University Hospital	General Medicine	March 24-28, full time
University of Florida, Dept. of Medicine, Graduate School, 1625 Riverside Ave., Jacksonville, Fla. At: George Washington Hotel	Twentieth Annual Graduate Short Course	June 23-28, full time
Medical College of Georgia, University Place, Augusta, Ga.	Postgraduate Course for Negro Physicians Refresher Course for General Practitioners	June 16-20, full time March 3-7, full time
Chicago Medical Society, 86 E. Randolph St., Chicago, Ill. At: The Palmer House	Advances in Medicine Clinical Conference	March 3-5, 3 days March 4-7, full time
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in General Medicine Biochemical Background of Clinical Medicine, a Basic Course Personal Course in Medical Emergencies, Diagnosis and Treatment Intensive Personal Course in Liver and Biliary Tract Diseases	April 2, 10 sessions, part time March 12, 15 sessions, part time March 12, 10 sessions, part time June 2, 1 week, full time
Illinois Academy of General Practice, 7107 S. Jeffery Ave., Chicago 49, Ill.[14] At: Chicago, Rockford, Joliet, Peoria, Bloomington, Danville, Alton, Belleville, and Herrin	Postgraduate Course	January 9-April 23, part time
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Practical Approach to Peripheral Vascular Disorders	January or February, 12 weeks, part time
Indiana State Medical Association, 23 E. Ohio St., Indianapolis, Ind.	Telephone Seminars	1st Tuesday night of each mont
Kansas Academy of General Practice, 212 Central Bldg., Topeka, Kan. At: Town House Hotel, Kansas City, Kan.	Scientific Meeting	April 15, 1 day
University of Louisville School of Medicine and Kentucky State Medical Association, Louisville, Ky. At: Brown Hotel	Medical Seminar	June 2-3, full time
Flint-Goodridge Hospital of Dillard University, 2425 Louisiana Ave., New Orleans, La.	Annual Postgraduate Course for Physicians	June, 2 weeks, full time
Maryland Academy of General Practice, 2314 W. North Ave., Baltimore, Md. Throughout State of Maryland	One Day Postgraduate Seminar	Arranged, every 2d or 3d month
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Rheumatic Diseases	February 4-6, full time
University of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Rheumatic Diseases	March 24-28, full time
At: Alpena, Battle Creek, Bay City, Flint, Jackson, Lansing, Midland, Mt. Clemens, Muskegon, Traverse City, Cadillac, Escanaba, Houghton, Iron Mountain, Ironwood, Marquette, Menominee, Kalamazoo, Niles, and Sault Ste. Marie[15]	Practitioners' Course (Circuit Courses)	April-May, 1 day in each center
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich. At: Receiving Hospital	Medical Conference	Quarterly, part time
Missouri State Medical Association, 623 Missouri Theater Bldg., St. Louis, Mo. At: Jefferson Hotel, St. Louis	1952 Annual Meeting[16]	March 31-April 2, full time
At: Eight Rural Councilor Districts of the Mo. State Medical Assn.	Postgraduate District Meetings[17]	Spring, part time
University of Missouri School of Medicine, Columbia, Mo. At: Rolla, Mo.	Anti-Coagulant Therapy — Old and New	January 29, 1 evening
	The Management of Common Ear, Nose and Throat Conditions	
Atlantic City Hospital, 30 S. Ohio Ave., Atlantic City, N. J.	Recent Advances in General Practice	Continuously, Monday-Friday, 50 weeks
New Jersey Academy of General Practice, 129 Chancellor Ave., Newark 8, N. J. At: West Jersey Hospital, Camden	Postgraduate Sessions for South Jersey[18]	Every 8 weeks, 4 hours
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Jewish Hospital	Hypertension and Nephritis Peripheral Vascular Diseases	April, 8 weeks, part time April, 5 weeks, part time
At: Beth El Hospital	Peripheral Vascular Diseases	April, 10 weeks, part time
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Peripheral Vascular Diseases	Arranged, 2 months, part time
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	General Medicine General Practitioner's Course	Arranged, 4 weeks, full time Arranged, 4 weeks, full time

References will be found on page 1489.

Institution	*Title of Course*	*Schedule of Course*	*Registration Fee and/or Tuition*
MEDICINE, GENERAL—Continued			
ork University Post-Graduate Medical School, 477 ; Ave., New York 16, N. Y.			
: Bellevue Hospital	517-A Problems in Diagnosis	April 17-June 5, part time	$35.00
: University Hospital	5118-B Medicine	June 23-27, full time	50.00
	5112-A Nephritis and Hypertension	April 18-June 6, part time	35.00
	5113-A Peripheral Vascular Diseases	April 15-June 5, part time	40.00
sity of North Carolina School of Medicine, Chapel N. C.			
: Raleigh, New Bern-Morehead City, Elizabeth City-hoskie-Edenton and Gastonia	Medical Postgraduate Extension Course	January, February, March and April, 6 to 8 weeks, part time	20.00 to 30.00
sity of Cincinnati College of Medicine, Eden and esda Ave., Cincinnati 19, Ohio	The Southwestrn Ohio Society of General Physicians (Seminars)	February 7-March 6, part time	10.00 [10]
sity of Oklahoma School of Medicine, Oklahoma City,	Laboratory Examination in Clinical Diagnosis	January 28-February 2, full time	60.00
son Medical College, 1025 Walnut St., Philadelphia 7,	Jefferson Graduate Assembly [20]	January 30-Feb. 1, full time	5.00
lelphia County Medical Society, 301 S. 21st St., Phila- hia 3, Pa.			
: Bellevue-Stratford Hotel, Philadelphia	Annual Postgraduate Institute	April 1-4, full time	10.00 [21]
Star Medical Association, Prairie View, Texas			
: Prairie View A. and M. College	Postgraduate Medical Assembly [22]	1st week in March, full time	None
rsity of Vermont College of Medicine, Burlington, Vt.			
t: Mary Fletcher and De Goesbriand Hospitals	May Clinical Meeting	3d week in May, 1 day	None
rsity of Virginia, Department of Medicine, Charlottes- , Va.	The Management of Common Traumatic Injuries	January 11, 1 day	None
	Infectious Diseases	April 4, 1 day	None
ington Academy of General Practice, 407 Riverside ., Spokane, Wash.			
t: The University of Washington School of Medicine, Seattle	General Practice Clinic Day	April 11, 1 day	None
Medical Society of Wisconsin, 701 E. Gorham St., dison, Wis.			
t: Various districts in Wisconsin	Clinics and Conferences	February-May, part time	Not given
rsity of Wisconsin Medical School, 418 N. Randall Ave., dison 6, Wis.	Recent Advances in Therapy and Prevention of Infectious Diseases	March, 3 days, full time	10.00
NEUROLOGY AND PSYCHIATRY			
ge of Medical Evangelists, Boyle and Michigan Aves., s Angeles 33, Calif.			
t: Osler House	Differential Diagnosis of Nervous Diseases	February 14-April 3, part time	40.00
	Roentgen Diagnosis from a Neurological and Neurosurgical Basis	February 12-April 1, part time	40.00
Angeles Institute for Psychoanalysis, 407 Commercial nter St., Beverly Hills, Calif.	Professional Training in Psychoanalysis	Arranged, part time	232.00
	The Fundamentals of Psychoanalysis [23]	Weekly, 6 weeks, part time	25.00
	The Fundamentals of Psychoanalysis [24]	Weekly, 6 weeks, part time	12.00
ersity of California School of Medicine, San Francisco Calif.			
t: The Langley Porter Clinic	Psychosomatic Medicine	March 17-21, full time	Not given
ersity of Colorado School of Medicine, 4200 East Ninth e., Denver 20, Colo.	Psychiatry for General Practitioners	June 26-28, full time	25.00 [6]
University School of Medicine, 333 Cedar St., New aven, Conn.	Child Psychiatry and Problems of the Psychodynamics of Growth and Maturation in Children and Adolescents	March 19-April 30, part time	15.00
	Psychiatry and Law	January 8-29, part time	10.00
At: Connecticut State Hospital, Middletown	Clinical Psychology	January 7-February 11, part time	5.00
	Treatment in the Psychiatric Hospitals	January 7-February 11, part time	5.00
	Psychiatric Syndromes and Reaction Patterns	January 7-February 11, part time	5.00
	General Psychopathology	January 7-February 11, part time	5.00
At: New Britain Memorial Hospital, New Britain	Psychiatry and Social Problems of Old Age	March 31-April 28, part time	5.00
At: Southbury State Training School, Southbury	Pediatric Neurology	April 4-May 2, part time	10.00
k County Graduate School of Medicine, 427 S. Honore ., Chicago 12, Ill.	Personal Course in Clinical Neurology	March 12, 10 sessions, part time	100.00
	Personal Course in Neuropathology	By appointment on an hourly basis	20.00 per hour
versity of Maryland School of Medicine, 29 S. Greene St., altimore 1, Md.	Neuropathology "C"	Arranged, 6 months, full time	200.00 plus $10.00 lab. fee
ropolitan State Hospital, 475 Trapelo Rd., Waltham, ass.[25]	Postgraduate Seminar in Neurology and Psychiatry	March 3-May 5, part time	None
versity of Michigan Medical School, Ann Arbor, Mich.			
At: University Hospital	Clinical Neurology	May 5-7, full time	40.00
versity of Minnesota Center for Continuation Study, inneapolis 14, Minn.	Clinical Neurology for General Physicians and Specialists	January 28-February 9, 2 weeks, full time	80.00
stgraduate Center for Psychotherapy, 218 E. 70th St., ew York 21, N. Y.	Principles of Group Psychotherapy [38]	February 5, 12 weeks, part time	35.00
	Readings in Psychiatry and Allied Fields, Part II [38]	February 7, 8 weeks, part time	25.00
	Continuous Case Seminar (Psychiatrists)	February 7, 15 weeks, part time	40.00
	Studies in Community Mental Health [38]	April 3, 8 weeks, part time	30.00
	Principles and Techniques of Child Psychotherapy [38]	February 5, 12 weeks, part time	30.00
	Somatic Complications During Psychotherapy [38]	May 5, 5 weeks, part time	15.00
	Clinical Conference in Group Psychotherapy [38]	February 7, 12 weeks, part time	Not given
	Seminar in the Use of the Rorschach Technique with Children [38]	February 7, 15 weeks, part time	30.00
	Psychiatric Seminar for Physicians	February 7, 15 weeks, part time	30.00
	Anthropological Aspects of Psychiatry [38]	February 5, 10 weeks, part time	30.00
	Seminar on Diagnosis and Treatment Planning in Child Psychotherapy [38]	February 7, 15 weeks, part time	30.00
	Research Techniques in Community Mental Health [38]	February 5, 10 weeks, part time	30.00

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course
	NEUROLOGY AND PSYCHIATRY—*Continued*	
Postgraduate Center for Psychotherapy, 218 E. 70th St., New York 21, N. Y.	Advanced Supervisory Technics in Psychotherapy [30]	February 6, 15 weeks, part time
	Problems of Adolescence	January 12, 1 day
	Principles of Psychiatric Consultation with Community Agencies [38]	March 15, 1 day
	Treatment of the Schizophrenic Patient (Psychiatrists)	March 15, 1 day
	The Treatment of the Depressed Patient (Psychiatrists)	April 5, 1 day
	Therapeutic Techniques in Marital Problems [38]	April 26, 1 day
	Annual Seminar on the Treatment of the Alcoholic Patient [38]	May 3, 1 day
American Institute for Psychoanalysis, 220 W. 98th St., New York 25, N .Y.	Clinical Conferences on Case Histories	February 5, 15 weeks, part time
At: New School for Social Research	*Sex in Neurosis*	March 31, 8 weeks, part time
	Neuroses and Psychoses	February 7, 15 weeks, part time
	Culture and Neurosis	March 18, 10 weeks, part time
Columbia University, 630 W. 168th St., New York 32, N. Y.		
At: Mt. Sinai Hospital	Clinical Neurology (Neurology PM 30)	April 21-25, full time
	Laboratory Training in Clinical Electroencephalography (Neurology PM 34) For Specialists	Any three months
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.		
At: Jewish Hospital	Child Psychiatry (Introductory Course)	April, 10 weeks, part time
	Child Psychiatry (Advanced Course)	April, 10 weeks, part time
At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Neurology	April, 8 weeks, part time
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Psychoanalysis and Psychiatry	Spring, 12 lectures
	Readings in Psychoanalytic Literature	Spring, 15 lectures, part time
New York University Post-Graduate Medical School, 477 *First Ave., New York 16, N. Y.*		
At: Bellevue and University Hospitals	553-A Trauma of Central Nervous System	June 16-21, full time
	Treatment Methods in Psychiatry	January 14-March 8, part time
	Psychiatry and Neurology	January 7-March 15, full time
	Psychiatric and Neurologic Problems in General Practice	January 7-26, part time
	Anatomy and Physiology of the Autonomic Nervous System and Their Clinical Application	January 14-19, full time
University of Oklahoma School of Medicine, Oklahoma City, Okla.	Practical Psychiatry	February 25-26, full time
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Electroencephalography	Arranged, 2 weeks, part time [26]
University of Texas Postgraduate Division, Medical Branch, Galveston, Texas	Psychiatry	February 4-8, full time
niversity of Wisconsin Medical School, 418 N. Randall St., Madison 6, Wis.	Neurology and Psychiatry in General Practice	April, 3 days
	NUCLEAR SCIENCE	
Institute of Nuclear Studies, Oak Ridge, Tenn.	Basic Course in Radioisotope Techniques	Jan. 7, Feb. 4, March 10, and June, 4 weeks, *full time*
	NUTRITION	
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Nutrition	March 10-June 7, part time
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Principles and Practices of Diet Therapy (Medicine PM 40)	February 18-March 24, part time
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., *New York 29, N. Y.*	Nutrition	Arranged, 1 month, part time
	OBSTETRICS AND GYNECOLOGY	
University of Arkansas Office of Postgraduate Medicine, Little Rock, Ark.	Postgraduate Course in Obstetrics and Gynecology	January 21-23 and May 19-21, full time
College of Medical Evangelists, Boyle and Michigan Aves., Los Angeles 33, Calif. At: Osler House	Gynecology	April 2-June 4, part time
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver 20, Colo.	Obstetrics and Gynecology — Postgraduate Symposium	April 10-12, full time
George Washington University School of Medicine, 1335 H St., N. W., Washington, D. C. At: George Washington University Hospital	Obstetrics and Gynecology	March 10-14, full time
Office of the Surgeon General Educational and Training Division, Washington, D. C. At: Brooke Army Hospital, Fort Sam Houston, Texas	Postgraduate Seminar, Obstetrics and Gynecology [36,a,b,d]	March 27-29, full time
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Two Week Intensive Course in Gynecology	Feb. 18, March 17, April 21, June 16, full time
	Personal Course in Gynecologic Surgery	Jan. 10, Feb. 7, April 3, May 15, 4 weeks, part time
	Personal Course in Office Gynecology	Jan. 9, Feb. 6, April 2, May 14, 4 weeks, part time
	Personal Course in Vaginal Approach to Pelvic Surgery	March 3, 31, May 5, June 23, 1 week, full time
	Two Week Intensive Course in Obstetrics	March 3, 31, June 2, 2 weeks, full time
	Personal Course in Surgical Obstetrics	January 9, March 6, 4 weeks, part time
	Personal Course in General and Office Obstetrics	February 6, May 7, 4 weeks, part time
State University of Iowa College of Medicine, Iowa City, Iowa	Obstetrics and Gynecology, Postgraduate Conference	May, 1 day
Tulane University School of *Medicine, 1430 Tulane Ave.,* New Orleans, La.	Review in Obstetrics	March 31-April 5, full time

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	OBSTETRICS AND GYNECOLOGY—Continued		
Hopkins University School of Medicine, Baltimore,	Gynecology and Gynecological Pathology	February 1, 2 weeks, full time	$150.00
rsity of Maryland School of Medicine, 29 S. Greene St., .lmore 1, Md.			
:: University Hospital	Gynecology and Obstetrics	Arranged, during academic year; 12 weeks, full time	150.00
	Gynecology, Oncology and Female Urology	Arranged, during academic year, 10 weeks, full time	125.00
ırd Medical School, Courses for Graduates, 25 Shat- : St., Boston 15, Mass.			
:: Boston Lying-In Hospital	Clinical Obstetrics	April and May, 1 month, full time	150.00[6]
:: Massachusetts General Hospital	Gynecology 1	Arranged, 3-12 months, full time	800.00 for 12 months[6]
t: Free Hospital for Women	Gynecology 2	June, 1 month, full time	150.00[6]
rsity of Michigan Medical School, Ann Arbor, Mich.			
t: Maternity Hospital (University Hospital)	Obstetrics	January 9-12, full time	50.00
	Gynecology	February 7-10, full time	50.00
rsity of Minnesota Center for Continuation Study, neapolis 14, Minn.	Obstetrics for Specialists	April 17-19, full time	25.00
ington University School of Medicine, Euclid Ave. and gshighway, St. Louis 10, Mo.	Postgraduate Course in Gynecology	March	80.00
rsity of Missouri, Columbia, Mo.			
Macon, Mo.	Analgesia in Obstetrics, Feeding and General Care of Infants	January 30, 1 evening	None
ırsity of Nebraska, 42d and Dewey Ave., Omaha 5, Neb.			
t: University of Nebraska Hospital	Hemorrhage During Pregnancy and Labor	February 15-16, full time	10.00
	Diseases of the Kidney, Cardiovascular Disease and Toxemias of Pregnancy	April 18-19, full time	10.00
: County Medical Society, 38-40 Clinton St., Newark, J.			
t: Seton Hall University Campus	Gynecology	February 23, 15 weeks, part time	100.00
ımbia University, 630 W. 168th St., New York 32, N. Y.			
.t: Mt. Sinai Hospital	Recent Advances in Gynecology (Gynecology PM 30)	March 24-29, full time	65.00
ıt: Margaret Hague Maternity Hospital	Internship Training (Obstetrics PM 80)	1st of each month, 3 months, full time	850.00
	Observation Course (Obstetrics PM 81)	1st of each month, 1 month, full time	100.00
t Committee on Post-Graduate Education, 1313 Bedford e., Brooklyn 16, N. Y.			
lt: State University College of Medicine	Manikin	April, 8 weeks, part time	30.00
lt: Greenpoint Hospital	Sterility	April, 12 weeks, part time	40.00
York Polyclinic Medical School and Hospital, 345 W. h St., New York 19, N. Y.	Gynecology and Obstetrics, Including Manikin Obstetrics and Operative Gynecology (Cadaver)	April, 2 months, full time	250.00
	Manikin Obstetrics	Arranged, 4 weeks, part time	150.00
	Clinical Course in Office and General Obstetrics	Arranged, 4 weeks, part time	100.00
	Clinical Gynecology	Arranged, 6 weeks, part time	75.00
	Clinical and Operative (Cadaver) Gynecology	Arranged, 6 weeks, part time	175.00
York University Post-Graduate Medical School, 477 'st Ave., New York 16, N. Y.			
ıt: University Hospital	561-B Seminar in Gynecology	April 28-June 21, full time	250.00
	562-B Gynecology, Diagnosis and Office Treatment	February 25-March 17, part time	50.00
	563-B Gynecology, Diagnosis and Office Treatment	March 24-April 25, part time	75.00
	566-B Cystoscopy and Endoscopy	March 24-April 25, part time	75.00
	567-B Gynecological Endocrinology	April 15-June 7, part time	125.00
	568-B Vaginal Cytology (for Specialists)	April 15-June 5, part time	85.00
	569-B Surgical Anatomy as Applied to Gynecology (Cadaver) (for Specialists)	February 26-March 22, part time	175.00
ıt: Beth Israel Hospital	734-B Gynecology (for Specialists)	February 4-May 23, part time	250.00
'ersity of Oregon Medical School, 3181 S. W. Sam Jack- n Park Rd., Portland 1, Ore.	Obstetrics	January 28-30, full time	80.00
urry Medical College, Nashville, Tenn.	Postgraduate Course in Obstetrics	May 12-16, full time	Not given
'ersity of Texas Postgraduate Division, Medical Branch, ılveston, Texas	Obstetrics	April 7-11, full time	25.00
'ersity of Washington School of Medicine, Seattle 5, ash.	Gynecology	To be announced, 4 days, full time	40.00
	ONCOLOGY		
'ersity of Texas Postgraduate Division, Medical Branch, ılveston, Texas	Tumor	March 3-6, full time	20.00
	OPHTHALMOLOGY AND OTOLARYNGOLOGY		
lege of Medical Evangelists, Boyle and Michigan Aves., ›s Angeles 33, Calif.			
At: Osler House	Ophthalmology	January 29-March 18, part time	30.00
	Histology and Histopathology of the Eye	February 27-June 18, part time	75.00
ıford University School of Medicine, 2398 Sacramento :., San Francisco 15, Calif.	Stanford Spring Postgraduate Conference in Ophthalmology	March 24-28, full time	75.00
versity of Florida, Dept. of Medicine, Graduate School, 25 Riverside Ave., Jacksonville, Fla.			
At: San Souci Hotel, Miami Beach, Fla.	Midwinter Seminar in Ophthalmology and Otolaryngology	January 14-19, full time	40.00
›k County Graduate School of Medicine, 427 S. Honore t., Chicago 12, Ill.	Two Week Clinical Course in Ophthalmology	1st of every week, full time	50.00
	Refresher Course in Ear, Nose and Throat for the General Practitioner	April 3, 10 sessions, part time	100.00
	Two Week Clinical Course in Otolaryngology	1st of every week, full time	50.00
lversity of Illinois College of Medicine, 1853 W. Polk St., hicago, Ill.	Bronchoesophagology		150.00
ate University of Iowa College of Medicine, Iowa City, owa	Ophthalmology Monthly Conference	1st Thursday of every month	None
lversity of Kansas Medical Center, Kansas City, Kan.[1]	Ophthalmology and Otolaryngology	March 17-21, full time	80.00

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course
OPHTHALMOLOGY AND OTOLARYNGOLOGY—*Continued*		
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Ophthalmoscopic Diagnosis in General Practice	January 31-February 2, full time
Harvard Medical School Courses for Graduates, 25 Shattuck St., Boston 15, Mass.		
At: Harvard and Massachusetts Eye and Ear Infirmary	Clinical Ophthalmology and Ocular Pathology	January 2-February 2, full time
	Fundamentals in Refraction and Ocular Motility	February 4-March 1, full time
	Audiology	February 4-16, full time
	Anatomy of the Temporal Bone	February 18-March 29, full time
Ophthalmological Study Council, 243 Charles St., Boston, Mass.		
At: Westbrook Jr. College, Portland, Me.	Lancaster Courses in Ophthalmology	June-September, full time
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Neuroophthalmology	March 3-7, full time
University of Michigan Medical School, Ann Arbor, Mich.	Ophthalmology for Specialists	April 21-23, full time
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Eye, Ear, Nose and Throat for General Physicians	May 12-14, full time
	Otolaryngology for Specialists	June 23-28, full time
Columbia University, 630 W. 168th St., New York 32, N. Y.		
At: Mt. Sinai Hospital	Ophthalmoscopy in General Practice (Ophthalmology PM 39-A)	February 4-March 24, part time
	Symposium in Ophthalmology (Ophthalmology PM 43) [10]	April 28-May 24, full time
	Refraction (Ophthalmology PM 44)	April 28-May 1, part time
	Muscles (Ophthalmology PM 45) [10]	April 28-May 2, part time
	Physiological Optics (Ophthalmology PM 46) [40]	April 28-May 1, part time
	Histopathology of the Eye (Ophthalmology PM 47) [40]	May 5-9, full time
	Bacteriology and External Diseases of the Eye (Ophthalmology PM 48) [40]	May 5-9, part time
	Medical Ophthalmology (Ophthalmology PM 49) [40]	May 6-10, part time
	Rhinoplasty and Otoplasty (Otorhinology PM 30) [10]	Any 3 months during academic yea part time
	Ophthalmoscopy (Ophthalmology PM 50) [40]	May 12-16, part time
	Slit Lamp Microscopy (Ophthalmology PM 52) [40]	May 12-16, part time
	Embryology of the Eye (Ophthalmology PM 53) [40]	May 12-16, part time
	Glaucoma (Ophthalmology PM 51) [40]	May 13-17, part time
	Neuro-Ophthalmology (Ophthalmology PM 54) [40]	May 19-23, part time
	Ophthalmic Surgery (Ophthalmology PM 55) [40]	May 19-24, full time
At: Montefiore Hospital	Perimetry (Ophthalmology PM 61) [40]	March 10-May 5, part time
At: Columbia Presbyterian Medical Center	Bronchoscopy (Otolaryngology PM 1) [40]	April 7-25, part time
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.		
At: Jewish Sanitarium and Hospital for Chronic Diseases	Ophthalmoscopy	April, 8 weeks, part time
	External Eye Diseases	April, 8 weeks, part time
New York Eye and Ear Infirmary, 218 2d Ave., New York, N. Y.	Perimetry [40]	February 6-29, May 7-June 4, 4 weeks, part time
	Refraction [40]	January 7-February 29, 8 weeks, part time
	Operative Eye Surgery [40]	October through May, 4 weeks, part time
	Glaucoma [40]	January 8-February 26, 8 weeks, part time
	Ophthalmoscopy [40]	January 2-30, 4 weeks, part time
	Slit Lamp Microscopy [40]	February 5-March 4, part time
	Anomalies of Extraocular Muscles [40]	Arranged, 4 weeks, part time
	Plastic Eye Surgery [40]	Arranged, 4 weeks, part time
	Physiological Optics [40]	January 9-February 15, 6 weeks, part time
	External Diseases of the Eye [40]	January 22-February 16, April and May, 4 weeks, part time
	Histopathology of the Eye [40]	February 4-9, part time
	Clinical Histopathology of the Eye [40]	January 8-February 1, part time
	Didactic and Operative Work in Rhino-Plasty and Otoplasty [10]	Arranged, 4 weeks, part time
	The Conservative Management of Acute Sinusitis and Chronic Rhinitis [10]	May, part time
	Rehabilitation of the Hard of Hearing [40]	Arranged, part time
	Broncho-Esophagology and Laryngeal Surgery [10]	February 4-16, part time
	Roentgenology—Eye [40]	Arranged, part time
	Preparation of Sections of the Eye [40]	Arranged
	Pathological Anatomy of Successfully and Unsuccessfully Operated Eyes [40]	Arranged, part time
	Clinical Studies through Therapy and Histopathology of the Diseases of the Fundus of the Eye [40]	February 12-March 7, part time
	Neuro Ophthalmology [40]	January 4-February 1, part time
	Allergy of the Eyes and Respiratory Tract [40]	January 6-February 1, part time
	Roentgenology—Ear [40]	January 14-25, part time
	Clinical Physiopathology of the Ear [40]	Arranged, 10 lectures, part time
	Resuscitation (to Acquaint Physicians with the Death Zone of the Respiratory Tract) [40]	Arranged, part time

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References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
York Polyclinic Medical School and Hospital, 345 W. St., New York 19, N. Y.	Otolaryngology and Ophthalmology, Including Cadaver, EENT and Refraction	January and April, 3 months, full time	$600.00
	Refraction	Arranged, 4 weeks, part time	100.00
	Advanced Otology	Arranged, 2 weeks, part time	250.00
	Ophthalmology, including Cadaver [illegible] raction	Arranged, 3 months, part time	300.00
		Arranged, 4 weeks, part time	50.00
		Arranged, 4 weeks, part time	150.00
	Bronchoscopy	Arranged, 4 weeks, part time	150.00
	Surgical Anatomy of Nose and Accessory Sinuses	Arranged, 4 weeks, part time	150.00
	Operative Ophthalmology (Cadaver)	Arranged, 4 weeks, part time	100.00
	Operative Otology (Cadaver)	Arranged, 4 weeks, part time	100.00
	Operative Nose and Throat	Arranged, 4 weeks, part time	150.00
	Seminar in Ophthalmology and Otolaryngology	Arranged, 5 days, full time	50.00
	Clinical Ophthalmology	Arranged, 6 weeks or 3 months, part time	75.00 6 wks. 100.00 3 mos.
	Clinical Otolaryngology	Arranged, 6 weeks or 3 months, part time	100.00 6 wks. 150.00 3 mos.
	Clinical Ophthalmology and Otolaryngology	Arranged, 6 weeks or 3 months, full time	150.00 6 wks. 250.00 3 mos.
York University Post-Graduate Medical School, 477 t Ave., New York 16, N. Y.			
t: University Hospital	571-A Motor Anomalies of the Eye (Part I) for Specialists	March 10-15, full time	90.00
	572-A Motor Anomalies of the Eye (Part II) for Specialists	March 17-21, full time	75.00
	573-B Ophthalmic Neurology (for Specialists)	March 3-7, part time	50.00
	575-B Differential Diagnosis with the Slit Lamp (for Specialists)	February 25-29, part time	75.00
	577-B External Diseases of the Eye (for Specialists)	February 25-29, part time	75.00
	5712-B Practical Office Procedures	January 28-February 1, part time	50.00
t: University and Bellevue Hospitals	579-B Neuro-Ophthalmology	January 21-25, part time	50.00
	5710-B Perimetry	January 21-25, part time	50.00
t: Bellevue Hospital	578-B Ocular Expressions of Systemic Disease	March 3-7, part time	50.00
	5711-B Ophthalmoscopy	January 28-February 1, part time	50.00
t: University, Bellevue and Lennox Hill Hospitals	574-B Surgery of the Eye (for Specialists)	March 24-29, full time	100.00
: Bellevue and University Hospitals	574-B Endaural Surgery	May 5-16, full time	150.00
rsity of Cincinnati College of Medicine, Eden and hesda Ave., Cincinnati 19, Ohio	Graduate Convention in Otology, Rhinology and Laryngology [27]	April 14-19, full time	125.00
rsity of Oregon Medical School, 3181 S. W. Sam Jack- Park Rd., Portland 1, Ore.[41]	Ophthalmology and Otolaryngology	March 24-28, full time (2½ days each section)	50.00 for one course 75.00 for both
le University Medical School, 3400 N. Broad St., Phila- hia 40, Pa.	Bronchoesophagology	February 11-22, full time	250.00
Memorial Eye, Ear and Throat Hospital, 711 S. Jeffer- St., Roanoke, Va.	25th Annual Spring Congress in Ophthalmology and Otolaryngology	April 7-12, full time	75.00

ORTHOPEDIC SURGERY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ge of Medical Evangelists, Boyle and Michigan Aves., Angeles 33, Calif.			
t: Osler House	Minor Orthopedic Surgery	April 15-June 3, part time	30.00
	Diseases and Injuries of Bones and Joints	July 7-31, full time	30.00
ard Medical School Courses for Graduates, 25 Shat- k St., Boston 15, Mass.			
t: Children's Hospital	Orthopedic Surgery 1	Arranged, 1-12 months, full time	800.00 for 12 months [6]
t: Massachusetts General Hospital	Orthopedic Surgery 2	Arranged, 3-12 months, full time	800.00 for 12 months [6]
mbia University, 630 W. 168th St., New York 32, N. Y.			
t: Hospital for Joint Diseases	Survey of the Essentials of Orthopedics (Orthopedic Surgery PM 80)	March 6-May 15, part time	100.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Orthopedics in General Practice	April, 6 weeks, part time	60.00
	Orthopedics of the Foot	Arranged, 8 weeks, part time	100.00
York Polyclinic Medical School and Hospital, 345 W. h St., New York 19, N. Y.	Orthopedic Surgery for General Surgeons	Arranged, 3 months, part time	75.00
	Operative Orthopedics (Cadaver)	Arranged, 5 periods, part time	100.00
	Advanced Orthopedics of the Foot	Arranged, 8 periods, part time	100.00
York University Post-Graduate Medical School, 477 rst Ave., New York 16, N. Y.			
At: Bellevue and University Hospitals	582-B Orthopedics in General Practice	June 16-27, full time	85.00

PATHOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ersity of Colorado *School of Medicine, 4200 East Ninth* e., Denver 20, Colo.	*Surgical Pathology*	*March 24-June 9, part time*	*28.00 for residents* *64.00 for non-residents*
e of the Surgeon General, Educational and Training vision, Washington, D. C.			
At: Armed Forces Institute of Pathology, 7th and Independence Ave., S. W., Washington 25, D. C.	Ophthalmic Pathology [36,a,b,e]	February 4-8, full time	None
e County Cancer Institute, 1155 N. W. 14th St., Miami, a.	Seminars—Cancer, Diagnosis and Cytology	January 14-19, full time	Not given
	Diploma Course in Cytology for Certification	Arranged, 6 months	Not given

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eferences will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course
	PATHOLOGY—Continued	
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	*Twelve Month Department Course in Gross and Surgical Pathology*	*By appointment, full time*
	Personal Course in Surgical Pathology	*By appointment, every month, full time*
	Twelve Month Course in Gross and Microscopic Pathology	*By appointment, full time*
	Six Month Clinical Course in Gross and Surgical Pathology	*By appointment, full time*
	Personal Course in Pathology and Laboratory Medicine	*March 26, 10 sessions, part time*
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	*Pathologic Diagnosis*	*April 2-June 4, 10 weeks, part time*
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.		
At: Free Hospital for Women	*Pathology of Obstetrics and Gynecology*	*January 3-May 8, part time*
Columbia University, 630 W. 168th St., New York 32, N. Y.		
At: Mt. Sinai Hospital	*Surgical Pathology (Pathology PM 31)*	*February 2-May 16, part time*
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.		
At: State University College of Medicine at New York	*Gynecological and Obstetrical Pathology*	*March, 10 weeks, part time*
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	*Pathology*	*Arranged, 16 weeks, part time*
	Clinical Pathology	*Arranged, part time*
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	*Surgical Pathology*	*Arranged, 3 months, part time*
	Urological Pathology	*Arranged, 3 months, part time*
	Blood Transfusions	*Arranged, 2 weeks, part time*
	Pathology	*Arranged, 3 months, part time*
	Pathology	*Arranged, 12 months, part time*
	Pathology for Surgeons	*Arranged, 1 month, part time*
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.		
At: University Hospital	*441-B Gynecological Pathology (for Specialists)*	*January 22-March 18, part time*
	412-B Surgical Pathology (for Specialists)	*March 18-June 26, part time*
At: Lenox Hill Hospital	*737-B Histopathology for Gynecologists*	*April 15-May 28, part time*
	726-B Pathology for Surgeons	*April 11-May 22, part time*
	PEDIATRICS	
University of Arkansas, Office of Postgraduate Medicine, Little Rock, Ark.	*Postgraduate Course in Pediatrics*	*February 18-19, full time*
College of Medical Evangelists, Boyle and Michigan Aves., Los Angeles 33, Calif.		
At: Osler House	*Surgical Diseases of Children*	*April 3-June 5, part time*
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver 20, Colo.		
At: St. Francis Hospital, Colorado Springs	*Children's Disease Clinic*	*May 21, 1 day*
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	*Twelve Month Department Course in Pediatrics*	*July 1, full time*
	Two Week Intensive Course in Pediatrics	*April 7, full time*
	Informal Refresher Course in Clinical Pediatrics	*1st of every week, 2 or 4 weeks, full time*
	Two Week Personal Course in Cerebral Palsy	*July 7, full time*
	Two Week Intensive Course in the Diagnosis and Treatment of Congenital and Acquired Heart Disease in Infants and Children	*To be announced, full time*
	Personal Course in Pediatrics	*March 19, 10 sessions, part time*
The Children's Memorial Hospital, 707 Fullerton Ave., Chicago 14, Ill.	*Pediatrics*	*May, 4 weeks, full time*
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	*Recent Advances in Pediatrics, Diagnostic and Therapeutic Measures*	*May, 1 week, full time*
University of Kansas Medical Center, Kansas City, Kan.[1]	*Pediatrics*	*January 28-30, full time*
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	*Pediatrics (for Specialists)*	*February 11-15, full time*
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.		
At: Children's Hospital	*Pediatrics 2*	*January 2-April 25, full time*
At: Massachusetts General Hospital	*Pediatrics 3*	*June 9-21, full time*
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	*Pediatrics for General Physicians*	*January 7-9, full time*
	Pediatrics for Specialists	*April 21-23, full time*
Columbia University, 630 W. 168th St., New York 32, N. Y.		
At: Mt. Sinai Hospital	*Clinical Pediatrics (Pediatrics PM 30)*	*February 5-April 15, part time*
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.		
At: Kings County Hospital	*Applied Immunologic Procedures in Children*	*April, 8 weeks, part time*
At: Beth El Hospital	*Clinical Pediatrics*	*April, 6½ weeks, part time*
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	*Pediatrics*	*Arranged, 4 weeks, part time*
New York State Department of Health, Albany, N. Y.		
At: Buffalo Children's Hospital	*Intensive Pediatric Refresher Course for General Practitioners*	*Spring, 2 weeks, full time*

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

PEDIATRICS—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Clinical Pediatrics	Continuously 1, 3, 6, 9 and 12 months	.....[28]
	Pediatric Allergy (Course II)	First two weeks in May, full time	$200.00
York University Post-Graduate Medical School, 477 rst Ave., New York 16, N. Y.			
At: University Hospital	613-A Pediatric Refresher Course	January 21-February 2, full time	90.00
	614-B Review of Clinical Pediatrics	March 10-15, full time	50.00
	616-A Pediatric Allergy	April 1-June 3, part time	60.00
	619-A Pediatric Cardiology	April 2-June 4, part time	60.00
At: Bellevue and University Hospitals	615-A Practical Pediatric Endocrinology	April 3-June 5, part time	50.00
versity of Oregon Medical School, 3181 S. W. Sam Jack- n Park Rd., Portland 1, Ore.	Pediatrics	May 12-16, full time	50.00
arry Medical College, Nashville, Tenn.	Refresher Course in Pediatrics	May 12-16, full time	30.00
derbilt University, Nashville, Tenn.	Pediatrics	May 25, 3 days	25.00
lor University College of Medicine, Houston, Texas	Postgraduate Course in Pediatrics	April 14-18, full time	Not given
versity of Texas Postgraduate Division, Medical Branch, alveston, Texas	Pediatrics	April 15-17, full time	15.00
versity of Vermont College of Medicine, Burlington, Vt.[29]	Pediatrics Seminar	Spring, 2 days	None

PHARMACOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Applied Pharmacology and Therapeutics	Arranged, part time	100.00

PHYSICAL MEDICINE

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
it Committee on Post-Graduate Education, 1313 Bedford ve., Brooklyn 16, N Y.			
At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Rehabilitation	April, 10 weeks, part time	20.00
At: Kings County Hospital	Physical Medicine and Rehabilitation	April, 6 weeks, part time	20.00
York Polyclinic Medical School and Hospital, 345 W. th St., New York 19, N. Y.	Physical Medicine and Rehabilitation	Arranged, 4 weeks, part time	100.00

PHYSIOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
le University School of Medicine, 333 Cedar St., New laven, Conn.[6]	Physiology 200, Brain Tumor Registry	Arranged, full time	65.00 per month
ok County Graduate School of Medicine, 427 S. Honore t., Chicago 12, Ill.	Clinical Physiology, a Basic Course	March 13, 10 sessions, part time	100.00
yne University College of Medicine, 1512 St. Antoine St., etroit, Mich.	Survey of Physiology	March 10-June 7, part time	15.00
	Blood	March 3-June 7, part time	30.00
umbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Physiology of Water and Electrolyte Balance (Physiology PM 31)	January 30-April 9, part time	40.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Physiology of the Cardiovascular System and Blood	Arranged, 4 weeks, part time	75.00
	Physiology of Respiration	Arranged, 1 month, part time	75.00
	Physiology of the Nervous System	Arranged, 2 weeks, part time	50.00
	Physiology of the Endocrine System	Arranged, 1 month, part time	75.00
	Physiology and Chemistry of the Gastrointestinal Tract, Digestion	Arranged, 1 month, part time	150.00
	Physiology of the Special Senses	Arranged, 1 month, part time	75.00
	Applied Physiology	Arranged, part time	300.00
York University Post-Graduate Medical School, 477 irst Ave., New York 16, N. Y.			
At: University Hospitals	545-A Normal and Pathological Physiology, Functional and Chemical Aspects	April 16-June 4, part time	40.00
	5420-B Normal and Pathological Physiology, Functional and Chemical Aspects	February 25-March 7, full time	100.00
iversity of Texas Postgraduate School of Medicine, 207-A lermann Professional Bldg., Houston, Texas At: Robert B. Green Memorial Hospital	Physiology	April 18-May 9, part time	10.00

PLASTIC SURGERY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
nhattan General Hospital, 307 Second Ave., New York, I. Y.[30]	Rhinoplastic and Otoplastic Surgery	February 11-March 15, full time	500.00

POLIOMYELITIS

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
thopaedic Hospital, 2400 S. Flower St., Los Angeles, Calif.	Poliomyelitis; Team Approach to *Total Care*	February 11-14 and May 19-22, *full time*	15.00
iversity of Colorado School of Medicine, 4200 East Ninth Ave., Denver 20, Colo.[31]	Poliomyelitis and Other Childhood Diseases with Respiratory Dysfunction	January 17-19, full time	15.00[4]
orgia Warm Springs Foundation, Warm Springs, Ga.	Care of Acute and Convalescent Poliomyelitis	1st Monday of January and April, 5 days, full time	None
ildren's Hospital, 300 Longwood Ave., Boston, Mass.	Diagnosis and Management of Acute Poliomyelitis	June, 5 days, *full time*	50.00
T. Watson School of Physiatrics, Leetsdale, Pa.[31]	Management of Acute Poliomyelitis	Summer, 4 days, full time	10.00

PROCTOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
llege of Medical Evangelists, Boyle and Michigan Aves., Los Angeles 33, Calif. At: Osler House	Proctology	January 3-March 6, part time	50.00
ok County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Lecture and Cadaver Course in Proctology	January 9, March 12, May 21, 5 sessions, part time	75.00
ifts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Proctology I	April 21-25, full time	40.00[6]
	Proctology II	April 28-May 24, full time	250.00[6]

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course
	PROCTOLOGY—Continued	
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Proctology for General Physicians	April 14-19, full time
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Newark City Hospital	Office Proctology	February 7, 3 afternoons, part time
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y. At: Jewish Hospital	Proctology	April, 6 weeks, part time
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Proctology, Gastroenterology, Operative Proctology (Cadaver)	January and April, part time
	Clinical Proctology and Gastroenterology	January and April, part time
	Clinical Proctology	Arranged, 6 weeks, part time
	Clinical and Cadaver Proctology	Arranged, 6 weeks, part time
	Clinical Gastroenterology	Arranged, 6 weeks, part time
	PUBLIC HEALTH	
U. S. Public Health Service, Communicable Disease Center, Atlanta, Ga.	Laboratory Diagnosis of Bacterial Diseases, General Bacteriology, Part 1	February 11-22, full time
	Part 2—General Bacteriology	February 25-March 7, full time
	Enteric Bacteriology	March 10-21, full time
	Laboratory Diagnosis of Bacterial Diseases	May 12-16, full time
	Laboratory Diagnosis of Parasitic Diseases, Part 1, Intestinal Parasites	February 11-March 7, full time
	Part 2, Blood Parasites	March 10-28, full time
	Laboratory Diagnosis of Parasitic Diseases	May 12-16, full time
	Laboratory Diagnosis of Virus Diseases	March 10-21, full time
	Laboratory Diagnosis of Virus Diseases	May 12-16, full time
	Laboratory Methods in Medical Mycology, Part 1, Cutaneous and Subcutaneous Fungi	March 31-April 11, full time
	Part 2, Systemic Fungi	April 14-25, full time
	Laboratory Diagnosis of Rabies	April 7-11, full time
	Laboratory Diagnosis of Tuberculosis	April 14-25, full time
	Laboratory Diagnosis of Tuberculosis	May 19-23, full time
New York State Department of Health, Albany, N. Y.[32] At: Albany, Buffalo, Rochester, Poughkeepsie, and Syracuse	Extension Course in Public Health	Continuously, part time
	PULMONARY DISEASES	
Los Angeles County TB Association and Trudeau Society, Los Angeles, Calif. At: Elks Hall, Santa Monica	Chest Disease Symposium	March, 3 days
University of California School of Medicine, San Francisco 22, Calif.[33]	Symposia on Diseases of the Chest	January 16-February 6, part time
Edward L. Trudeau Foundation and Trudeau Sanatorium, Saranac Lake, N. Y.	Trudeau School of Tuberculosis	April 28, 4 weeks, full time
lumbia University, 630 W. 168th St., New York 32, N. Y. At: Bellevue Hospital	Diseases of the Chest (Medicine PM 80)	February 4-29, full time
At: Columbia-Presbyterian Medical Center	Diseases of the Chest (Medicine PM 1)	January 21-26, full time
At: Mt. Sinai Hospital	Diseases of the Chest (Medicine PM 37)	January 22-March 18, part time
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y. At: Beth El Hospital	Diseases of the Chest	April, 6 weeks, part time
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Diseases of the Chest	March, 2 months, part time
At: Municipal Sanatorium	Pulmonary Tuberculosis	Arranged, 3 weeks, full time
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Willard Parker Hospital	548-A Acute and Chronic Diseases of the Chest	April 14-June 2, part time
At: *University and Willard Parker Hospitals*	5416-A Acute and Chronic Pulmonary Diseases	March 10-14, full time
American College of Chest Physicians, 112 E. Chestnut St., Chicago At: Warwick Hotel, Philadelphia	5th Annual Postgraduate Course in Diseases of the Chest	March 24-28, full time
	RADIOLOGY	
University of Arkansas, Office of Postgraduate Medicine, Little Rock, Ark.	Postgraduate Course in Radiology	March 6-7, 2 days
Yale University School of *Medicine, 333 Cedar St., New* Haven, Conn.[9]	*Radiology 304, Radioactivity*	*March 7-May 31, part time*
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Intensive Review Course in Radiation Physics	May 28-31, full time
	Diagnostic Roentgenology	April 2, 10 sessions, part time
	Clinical Interpretation of X-Ray Findings	March 13, 10 sessions, part time
	High and Low Voltage X-Ray Therapy	1st of every week, 1 or more weeks, full time
	Twelve Month Course in Diagnostic Roentgenology and X-Ray Therapy	By appointment, full time
	Two Week Clinical and Didactic Course in Diagnostic Roentgenology and Fluoroscopy	1st Monday of each month, 2 weeks, full time
	Routine Clinical Course in Diagnostic Roentgenology and Fluoroscopy	3d Monday of every month, full time
	Eight Month Course in Diagnostic Roentgenology	By appointment, full time

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	RADIOLOGY—Continued		
ersity of Kansas Medical Center, Kansas City, Kan.[1]	Roentgenological Physics	February and March, part time	$25.00
	Diagnostic X-Ray and Fluoroscopy	March 20-April 24, 6 weeks, part time	25.00
	Radiology	February 25-27, full time	20.00
vard Medical School, Courses for Graduates, 25 Shat-ck St., Boston 15, Mass.			
At: Peter Bent Brigham Hospital	General Radiology 1	Arranged, 1 month, full time	150.00[6]
At: Massachusetts General Hospital	General Radiology 2	Arranged, 1 month, full time	150.00[6]
At: Boston City Hospital	General Radiology 3	Arranged, 1 month, full time	150.00[6]
At: Children's Hospital	Pediatric Radiology	Arranged, 1 month, full time	150.00[6]
ersity of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Radiology, Diagnostic	April 7-11, full time	50.00
yne University College of Medicine, 1512 St. Antoine St., troit, Mich. At: Receiving Hospital	Medical X-Ray Conference	Quarterly, part time	15.00
ersity of Minnesota Center for Continuation Study, nneapolis 14, Minn.	X-Ray for General Physicians	March 3-5, full time	25.00
x County Medical Society, 38-40 Clinton St., Newark, J.			
At: Newark City Hospital	Radiation Therapy	March 4, 9 weeks, part time	75.00
mbia University, 630 W. 168th St., New York 32, N. Y.			
At: Hospital for Joint Diseases	Roentgenographic interpretation of the Diseases of Bones and Joints (Radiology PM 80)	March 5-May 21, part time	150.00
t Committee on Post-Graduate Education, 1313 Bedford e., Brooklyn 16, N. Y.			
At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Radiology	April, 10 weeks, part time	20.00
At: Beth El Hospital	Roentgen Diagnosis in Thoracic Diseases	April, 8 weeks, part time	20.00
At: Jewish Hospital of Brooklyn	Cardiovascular Roentgenology	April, 8 weeks, part time	20.00
York Medical College, Flower and Fifth Ave. Hospitals, E. 106th St., New York 29, N. Y.	Diagnostic Roentgenology	Arranged, 6 weeks, part time	150.00
	Radium and Roentgen Therapy	Arranged	150.00
York Polyclinic Medical School and Hospital, 345 W. th St., New York 19, N. Y.	Roentgen Interpretation	January and April, 3 months, full time	300.00
	Advanced Diagnostic Roentgen and Radiotherapy	January and April, 3 months, full time	300.00
	Diagnostic Roentgenology and Radiation Therapy	January and April, 12 months, full time	1,000.00
	Practical Course in Superficial and Deep Therapy	Arranged, 4 weeks, part time	100.00
	Advanced Course in Radiotherapy	Arranged, 4 weeks, part time	100.00
York University Post-Graduate Medical School, 477 rst Ave., New York 16, N. Y.			
At: University Hospital	652-B Diagnostic Radiology	February 18-May 9, part time	100.00
	654-A Radiobiology	January 31-June 12, part time	75.00
	656-A Diagnostic Radiology	June 16-27, part time	50.00
ersity of Oklahoma School of Medicine, Oklahoma City, la.	X-Ray Diagnosis	May 2-3, full time	10.00
ersity of Texas Postgraduate School of Medicine, 207-A ermann Professional Bldg., Houston, Texas			
At: St. Joseph's Infirmary	Radiology	January 9-March 12, part time	25.00
At: Robert B. Green Memorial Hospital	Radiology	April 18-May 9, part time	10.00
	SURGERY		
ersity of Arkansas, Office of Postgraduate Medicine, ittle Rock, Ark.	Postgraduate Course in Surgery	March 24-26, full time	30.00
lege of Medical Evangelists, Boyle and Michigan Aves., os Angeles 33, Calif.			
At: Osler House	Thoracic Surgery	April 30-June 18, part time	30.00
	Surgical Diseases of the Peripheral Vascular System	January 8-February 26, part time	30.00
iversity of Colorado School of Medicine, 4200 E. Ninth ve., Denver 20, Colo.	Traumatic and Emergency Surgery	May 19-20, full time	15.00[6]
ice of the Surgeon General, Educational and Training ivision, Washington, D. C.			
At: Fitzsimons Army Hospital, Denver 8, Colo.	Thoracic Surgery[30,a,b,c]	March 3-7, full time	None
orge Washington University School of Medicine, 1335 H St., N. W., Washington, D. C.			
At: George Washington University Hospital	Surgery	February 25-29, full time	75.00
ook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Two Week Intensive Review Course Considering Basic Principles in General Surgery	March 31, 2 weeks, full time	200.00
	Ten Hour Personal Course in Gallbladder Surgery	April 21, June 16, full time	100.00
	One Week Personal Course in Breast and Thyroid Surgery	June 23, 1 week, full time	150.00
	Ten Hour Course in the Treatment of Varicose Veins	1st and 3d Wednesday each month, part time	40.00
	Ten Hour Course in the Treatment of Varicose Veins	By appointment, every Monday, 2 days, full time	40.00
	Four Week Course in Surgical Technique, Clinical Surgery, Surgical Anatomy, Pre- and Post-Operative Management	March 3, June 2, full time	300.00
	Intensive Two Week Course in Surgical Technique	Jan. 21, Feb. 4, 18, March 3, 17, 31 April 14, 28, May 12, June 2, 16, full time	200.00
	Surgical Technique with Practice	February 13, 10 sessions, part time	250.00
	Personal Course in Surgical Diagnosis, Pre- and Post-Operative Management	April 2, 10 sessions, part time	100.00
	Basic Principles in General Surgery	March 6, 10 sessions, part time	125.00
	Personal Course in Clinical Surgery	March 6, 10 sessions, part time	150.00

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Regist and c
	SURGERY—Continued		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	One Week Personal Course in General Surgery	February 11, May 12, full time	
	Two Week Personal Course in General Surgery	April 14, full time	
	Two Week Course in Surgical Anatomy on the Cadaver, Clinical Surgery, Pre- and Post-Operative Management	March 17, June 16, full time	
	Surgical Anatomy on the Cadaver	March 13, 10 sessions, part time	
	One Week Personal Course in Thoracic Surgery	To be announced, full time	
	Personal Course in Thoracic Surgery	March 26, 10 sessions, part time	
	One Week Personal Course in Surgery of Colon and Rectum	March 3, April 7, May 12, June 2, full time	
	One Week Personal Course in Esophageal Surgery	June 23, full time	
	Personal Course in Surgical Pathology, Gross and Microscopic	March 19, 10 sessions, part time	
	Personal Course in Surgical Pathology on Selective Subjects	By appointment, 1 or 2 weeks	
	Personal Course in Esophageal Surgery	April 1, 10 sessions, part time	
	Clinical Bronchoscopy	April 16, 8 sessions, part time	
	One Week Personal Course in Bronchoscopy	By appointment throughout the year	
	Practical and Didactic Course in Proctoscopy and Sigmoidoscopy	Jan. 15, Feb. 12, March 11, April 8, May 6, June 10, 3 sessions, part time	
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Surgery, Indications, Pre- and Post-Operative Care	April, 1 week, full time	
University of Kansas Medical Center, Kansas City, Kan.[1]	Surgery	January 21-25, full time	
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Review in General Surgery and Traumatology	January 7-12, full time	
	Surgery of the Hand	Arranged, 2½ days, full time	
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: Massachusetts General Hospital	Experimental and Clinical Surgery	Arranged, 1-12 months, full time	
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Traumatic Surgery	April 24-26, full time	fo
	Principles of Surgical Technique (for Surgeons)	May 19-June 27, part time	
	Surgical Anatomy (for Surgeons)	March 3-April 25, part time	
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Surgery Seminar	Quarterly, part time	
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Surgery for General Physicians	April 7-9, full time	
Essex County Medical Society, 38-40 Clinton St., Newark, N. J.			
At: Newark City Hospital	Surgical Technique and Principles of Abdominal Surgery	February 8, 20 weeks, part time	
At: Kessler Institute for Rehabilitation	Amputations	February 6, 10 weeks, part time	
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Columbia Presbyterian Medical Center and Affiliated Hospitals	Recent Developments in Surgery (Surgery PM 100) [35]	May 12-16, full time	
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.			
At: St. John's Episcopal Hospital	Office Surgery	April, 8 weeks, part time	
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Gastrointestinal Surgery	Arranged	
	Thoracic Surgery	Spring, 3 weeks, full time	
	Surgical Technique	Arranged, part time	
	Surgical Aspects of Peripheral Vascular Diseases	Arranged	
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Combined Surgical Course, Including Cadaver Surgery and Gynecology	January and April, 3 months, full time	
	Clinical Surgery	January and April, 6 weeks, full time	
	Clinical and Operative (Cadaver) Surgery	January and April, 6 weeks, full time	
	Traumatic Surgery, Including General Surgery, Orthopedic Surgery and Physical Medicine	Arranged, 2 months, part time	
	Treatment of Varicose Veins	Arranged, 4 weeks, part time	
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.	Surgery of the Head and Neck	January 7-11, full time	
At: Bellevue Hospital	660-A Anatomy and Physiology of the Autonomic Nervous System and Their Clinical Application	January 14-19, full time	
At: Bellevue and University Hospitals	661-B Review of General Surgery (for Specialists) [43]	March 31-April 26, full time	
At: Beekman-Downtown, Gouverneur, Bellevue and University Hospitals	667-A Surgery of the Hand	March 24-29, full time	
At: Beekman-Downtown, Gouverneur and Bellevue Hospitals	668-A Diagnosis and Treatment of Fractures and Dislocations	February 4-16, full time	
At: Beekman-Downtown and Bellevue Hospitals	669-A Surgery of Trauma	April 3-June 5, part time	
At: University Hospitals	662-A The Basic Problems in Cancer Therapy for Surgeons (for Specialists) [43]	January 21-February 2, full time	
University of Oklahoma School of Medicine, Oklahoma City, Okla.	Review of General Surgery and Surgical Technique	March 11-May 13, part time	
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1, Ore.	General Surgery	March 10-14, full time	
University of Texas Postgraduate School of Medicine, 207-A Hermann Professional Bldg., Houston, Texas			
At: Scott and White Memorial Hospitals	Surgery of the Gastrointestinal Tract	March 24-27, full time	
University of Texas Postgraduate Division, Medical Branch, Galveston, Texas	Traumatic Surgery	January 7-11, full time	

References will be found on page 1489.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1952 to July 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	THERAPY		
:sity of Oregon Medical School, 3181 S. W. Sam Jack- Park Rd., Portland 1, Ore.	Applied Therapeutics	February 18-22, full time	$50.00
:sity of Texas, Postgraduate School of Medicine, 207-A nann Professional Bldg., Houston, Texas : Robert B. Green Memorial Hospital	Modern Therapeutics	January 4-April 11, part time	25.00
	TROPICAL MEDICINE		
ork University Postgraduate School of Medicine, 477 t-Ave., New York 16, N. Y.	Tropical Medicine	January 7-February 29, full time	Not given
	UROLOGY		
e of Medical Evangelists, Boyle and Michigan Aves., Angeles 33, Calif. : Osler House	General Urology	January 2-February 27, part time	35.00
County Graduate School of Medicine, 427 S. Honore Chicago 12, Ill.	Two Week Intensive Course in Urology	April 28, full time	225.00
University of Iowa College of Medicine, Iowa City, a	Urology Monthly Conference	2d Wednesday of every month	None
rsity of Kansas Medical Center, Kansas City, Kan.[1]	Diagnostic Urology	January 24-February 28, part time	25.00
can Urological Association, 102-110 Second Ave., S. W., hester, Minn. : Hotel Windsor, Montreal, Canada	Urological Postgraduate Seminar	January 7-12, full time	Not given
York University Post-Graduate Medical School, 477 t Ave., New York 16, N. Y. : Bellevue and University Hospitals	671-A Advanced Course in Urology (for Specialists)	March 31-April 26, full time	175.00
	VENEREAL DISEASE		
d States Public Health Service Medical Center, Hot ings, Ark.	18th Venereal Disease Postgraduate Course	April 14-18, full time	None
Public Health Service, Atlanta, Ga. t: Venereal Disease Research Laboratories	Treponema Pallidum Immobilization Test	May 19-23, 1 week, full time	None
	Laboratory Diagnosis of Venereal Diseases	May 12-16, full time	None
	Serology of Syphilis	January 14-25, March 10-21, April 14-25, May 12-23	None
e University College of Medicine, 1512 St. Antoine St., roit, Mich. t: Social Hygiene Clinic	Conference on Venereal Diseases	Quarterly, part time	15.00
ute for the Study of Venereal Disease of the Univer- of Pennsylvania, 34th and Locust Sts., Philadelphia a.	Six Months Essential Basic Training Course	Arranged, full time	Arranged
	Four Week Intensive Review Course	Arranged, full time	Arranged
	Three Week Intensive Review Course	Arranged, full time	Arranged
	Ten Day Refresher Course	Arranged, full time	Arranged

Also sponsored by Kansas Medical Society, ka, and the Kansas State Board of Health, ka.

Course limited to one student.

Formal basic science courses in prepara- for specialty board certification.

These are basic courses in medicine, sur- anesthesiology, obstetrics and gynecol- otolaryngology, pathology, pediatrics, logy and urology.

Also sponsored by the Indiana Heart dation.

Plus $5.00 registration fee.

Also sponsored by the Minnesota Heart ciation.

$20.00 for physicians within the area (i. e.), ahoga, Geauga, Lake, Lorain and Ashta- counties.

Also sponsored by the Connecticut State cal Society.

Also sponsored by the Kettering Labora- .

Second half of course from January 10- 17.

Also sponsored by the Indiana Cancer ety.

. Also sponsored by the Vermont State cer Society, Montpelier, Vt.

. Also sponsored by University of Chicago, ersity of Illinois., Northwestern University, tch School of Medicine and Chicago Medi- College.

. Also sponsored by M. S. M. S., Wayne versity and Michigan Department of Health.

. Membership in the Missouri State Medical ociation, plus guest.

. Membership in the Missouri State Medical ociation.

. These courses are prepared for the benefit G. P.'s who want concentrated instruction a location easily accessible to them.

. $15.00 for nonmembers of A. A. G. P. or thwestern Ohio Society of G. P.

20. Only alumni of the Jefferson Medical College are eligible to enroll.

21. $10.00 to all M.D.'s not members of the Philadelphia County Medical Society.

22. For physicians in Texas.

23. For physicians in G. P. or specialties other than psychiatry.

24. For psychiatric residents.

25. Sponsored by Massachusetts Department of Mental Health, 15 Ashburton Pl., Boston, Mass.

26. The stated two week period may be followed by additional studies at $100 per week. The course may also be taken by Philadelphia area physicians on six consecutive Thursdays, 36 hours at $150.00.

27. Limited to specialists in EENT.

28. One month, $150.00; 3 months, $250.00; 6 months, $450.00; 9 months, $650.00; 12 months, $850.00.

29. Also sponsored by State Department of Health.

30. For ENT diplomates.

31. Also sponsored by the N. F. I. P., 120 Broadway, New York City.

32. Also sponsored by Albany Medical College, Albany, New York.

33. Given in conjunction with the American College of Chest Physicians and A. A. G. P.

34. Two weeks, $110.00; 1 month, $200.00; 2 months, $300.00.

35. For qualified general surgeons.

36. (*a*) Attendance is encouraged from Regular, Reserve or National Guard Medical Officers of the Armed Forces on active duty, at government expense. Attendance will be considered on a space available basis and at the individual's own expense from individuals in the following priority: (A) medical officers of the Armed Forces not on active duty; (B) physicians and surgeons from other Federal Agencies; and (C) civilian physicians.

(*b*) Application procedure: Applications should be forwarded, so as to reach the addressee listed below not later than one month prior to the opening date of the course;

1. Applications from Army Medical Officers on active duty, will be forwarded to the Office of the Surgeon General, Department of the Army, Washington 25, D. C., Attention: Personnel Division, Career Management Branch.
2. Applications from medical officers from other branches of the Armed Forces should be forwarded through channels as appropriately announced.
3. All other applications should be forwarded to the appropriate Hospital Commander of the installation offering the courses. Applications will be approved on a space available basis.

(*c*) For specialists only, i. e., Chiefs or Assistant chiefs of services or officers well advanced toward certification.

(*d*) Course designed to be of interest to both the specialist or general practitioner.

(*e*) The course is open to (1) ophthalmologists, (2) pathologists.

37. Sponsored by N. C. State Board of Health, scholarships awarded by North Carolina State Board of Health.

38. Qualified Psychiatric Professionals.

39. Qualified Psychiatric Professionals who have had a personal psychoanalysis plus at least 5 years of Psychotherapeutic experience.

40. For specialists.

41. Also sponsored by Oregon Academy of Ophthalmology and Otolaryngology, 1216 S. W. Yamhill Rd., Portland.

42. Two weeks $110.00, 1 month $200.00 and 2 months $300.00.

43. Applications must be accompanied by a list of surgical operations performed in the past six months, with the following information concerning each; hospital number, nature of operation, deaths, complications and end results.

MEDICAL MOTION PICTURES

Breakdown: 16 mm., black and white, sound, showing time 42 minutes. *Produced in 1951 for the Mental Health Authorities of the Provinces of* Canada by the National Film Board of Canada. Procurable from the National Film Board of Canada, 400 W. Madison St., Chicago 6, and 1270 Avenue of the Americas, New York 20.

This film deals with a young girl's schizophrenic breakdown: its onset and development, the effect on her family and her friends, her hospitalization in a modern mental hospital, and eventual discharge as recovered. Hospital scenes show an ideal mental hospital where modern methods of treating the emotionally ill are demonstrated and discussed. An appeal to the public is made for greater understanding of mental illness and *the need for removal of the stigmas traditionally attached to* mental illnesses. The objective of the film is to point out that mental illness can happen to anyone and that with known treatment technics it can be cured. The producers of this film adhere faithfully and consistently to their aim and within the limits of the running time of the film present a convincing story.

All the characters are well portrayed, and the portrayal of the schizophrenic is particularly excellent. The various scenes are appropriate and enhance the content of the narrator's message. The use of the family doctor as a source of information is particularly good; it shows the need for the general practitioner to become more informed regarding the problem of mental illness. What can be done toward the care, comfort, and eventual recovery of patients in a good mental hospital is well illustrated. Hospital scenes show an ideal mental hospital that is adequately staffed and where modern treatment technics are demonstrated and discussed. The film did not bring out that, as yet, treatment facilities as shown are rare. The hospital situation portrayed represents an ideal setup, rather than what one can expect in most mental hospitals.

The film is too elementary for use with professional persons in mental health work. However, psychiatrists, psychologists, and others in allied professions can use the film to good advantage when they are called on to present mental health information to special interested groups. The film is also recommended for county and state medical meetings and for college students in edical, nursing, social work, and psychology departments. The otography and narration are very well done.

Your Children's Eyes: 16 mm., black and white, sound, showing time 19 minutes. Produced in 1945 by Realist Film Unit. Procurable from British Information Service, 30 Rockefeller Plaza, New York 20.

This film describes the anatomy and physiology of the eye. It explains in a descriptive manner common defects such as short and long sightedness and other diseases of the eye. The rules to be followed for the maintenance of healthy eyesight are outlined, and it is pointed out that medical advice should be sought in cases of organic defects or diseases.

The illustration of the anatomy of the eye is accomplished in a very superior and clear manner by the use of a whole orange and its parts to simulate the structure of the eye. The presentation is technically accurate as well as interesting. It is suggested that this film be used in two parts, the first part containing the anatomy and disorders of the eye and the second part the treatment of disorders.

The first part is recommended for use on the intermediate and secondary school level, but the entire film would be of interest to adults. The photography and narration are well done.

Transabdominal Vagotomy with Gastro-Enterostomy: 16 mm., color, silent, showing time 33 minutes at sound speed. Produced in 1951 by and procurable on loan or purchase from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

This motion picture shows the technic of performing transabdominal vagotomy and gastroenterostomy for duodenal ulcer. The first reel consists largely of anatomic drawings clearly illustrating important points in the surgical anatomy of this combined surgical procedure. A brief case report is also included. The second and third reels show the actual performance of
vagotomy and gastroenterostomy on a patient, supplem
appropriate illustrations. The surgical procedures are
shown and well presented. The film is rather long and
edited to advantage. It can be recommended to dem
surgical anatomy and technic to medical students, interns,
dents, and surgeons. The drawings are well done; however,
of the legends are difficult to read. Otherwise the photo
is good.

Clinical Use of Hyaluronidase: 16 mm., color, sound, showing
minutes. Produced in 1951 at Columbia University College of Ph
and Surgeons at Presbyterian Hospital, New York, by Worces
Corporation, Worcester, Mass. Procurable on loan from Wyeth,
porated, 1401 Walnut St., Philadelphia 2.

This is a scientifically accurate presentation of the
facts concerning the clinical use of hyaluronidase, which
elective adjunct to the administration of parenteral fluids
anesthetics, and other drugs. Although some of the demon
uses are presented in an appealing manner, the practical
cation of some of these procedures would be limited. The
the film is recommended for showing to groups interested
clinical applications of the enzyme hyaluronidase, and it
be of interest to general practitioners as well as surgeons
ever, data are presented which would be difficult to stud
out a supplementary brochure. The picture is very well org
and the photography, animation, and narration are ex

MISCELLA

Factors in the Decrease in Infant Mortality.—Accordin
Statistical Bulletin, Metropolitan Life Insurance C
August, 1951, infant mortality in the United States
cut by about one-half in little more than 15 years. In 19
when nation-wide data first became available, the de
among children under 1 year of age averaged 59 per 1,
births; by 1948 the rate had dropped to 32 per 1,000,
it is somewhat under 30. Virtually all the major causes
mortality have shared in the improvement. However, th
of the gains for the individual causes vary widely.

The infectious diseases have shown the greatest redu
mortality. The death rate in infancy from the princip
municable diseases of childhood (especially whooping
syphilis, and tuberculosis, dropped 75% or more betwe
1934 and 1948, the latest year for which detailed data a
able. For diarrhea and enteritis the reduction was near
and for pneumonia and influenza more than 60%. The
factors in the better control of the major infections in
have been the widespread use of chemotherapy and
biotics, immunization and other preventive measures, i
infant feeding and care, the increased use of the hos
confinement and illness, and the marked rise in the
of living.

The death rate from premature birth and from co
debility and "other diseases peculiar to the first year
dropped nearly one-third in the period under review.
mortality from congenital malformations decreased 14%
reductions have resulted mainly from the better h
mothers during pregnancy and from improved care o
immediately after birth.

The death rate from accidents has failed to show any
The facts on accidents in infancy are not altogether
Deaths ascribed to mechanical suffocation, which const
most one-half of the accident total under age 1, are o
to undiagnosed respiratory illness. There is, neverthele
to strengthen the safety program for babies.

Premature birth continues to be the major problem,
ranking every other cause of infant mortality. The attent
being focused on this problem by medical and publi
agencies encourages the belief that prematurity will be
reduced as a cause of infant death.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

rican Heart Journal, St. Louis

42:321-482 (Sept.) 1951

al Evaluation of Ballistocardiogram: I. Normal Subjects. L. Pordy,
C. Taymor, M. Moser and others.—p. 321.
I. Heart Disease—Hypertension, Angina Pectoris, and Myocardial
arction. K. Chesky, M. Moser and R. C. Taymor.—p. 328.
perative Changes in Cardiac Output. T. C. Fleming, D. V. Habif
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of Value of Roentgenologic Demonstration of Valvular Calcifica-
ns. P. D. Genovese and R. T. Levin.—p. 344.
tion of Unsuspected Heart Disease in Photofluorographic Chest
veys. A. Selzer, M. B. Harrison and G. T. Daniloff.—p. 355.
cardiography in Localization of Foreign Bodies in Heart. E. M.
yette and M. M. Keirns.—p. 362.
al Vectorcardiography: Right Ventricular Hypertrophy as Seen in
ngenital Heart Disease. VII. R. P. Lasser, E. R. Borun and
Grishman.—p. 370.
rentiation Between Paroxysmal Auricular Tachycardia with Partial
V Block and Auricular Flutter. E. Simonson and R. Berman.
. 387.
n of Procaine Amide on Heart. A. M. Wedd, H. A. Blair and
S. Warner.—p. 399.
Myth of Strict Bed Rest in Treatment of Heart Disease. S. A.
vine.—p. 406.
of Patient with Very Resistant Streptococcus Viridans Endocarditis
h Massive Penicillin Therapy (Average Daily Dose of 86 Million
its). R. L. Whipple Jr.—p.—p. 414.
History of 100 Patients with Hypertensive Vascular Disease. G. A.
rera.—p. 421.
menger's Complex: Report of Two Cases and Review of Cases
th Autopsy Study. V. F. Bond Jr.—p. 424.
enital Heart Disease in Pregnancy. A. Kerr Jr. and W. A. Sodeman.
. 436.
Electrocardiographic Limb Electrode. E. Simonson.—p. 445.

Myth of Strict Bed Rest in Heart Disease.—There is clin-
ınd physiological evidence that strict bed rest is deleterious
tients with congestive heart failure. If heart failure is pres-
the heart obtains more rest when the patient is in a chair
the feet down than while he is recumbent in bed, even if
ead and back are elevated. Most patients with threatened
vident congestive heart failure should be treated, not in
but in a comfortable chair, and when they do go to bed at
to sleep, 8 to 9 inch blocks should be placed under the
posts to encourage gravity to keep body fluids in the legs
r than in the lungs. This principle has also been applied in
reatment of acute coronary thrombosis. The author ob-
d a mortality of only 10% a group of 70 patients with acute
nary thrombosis who were placed in chairs for varying and
asing periods of the day beginning not later than the first
of the attack. The results of this method of treatment seem
uraging and appear to have both physical and psychic ad-
ages over the strict bed rest method of treatment.

ertensive Vascular Disease.—Statistical information has
gathered concerning the life history of 100 patients fol-
d from the time of onset of hypertension until death. The
p included 38 men and 62 women. Twenty-six of the patients
a family history of hypertensive vascular disease. In four
nts the onset of hypertension was associated with pregnancy.
average age of onset of hypertension was 32 and the aver-
age at death was 51. Thus hypertensive vascular disease
lly begins in early adult life and has an average duration of
to two decades. Although 24 of the women had preg-
ies during the period of observation, in only 4 was there any evident relationship between pregnancy and the onset of disease. As hypertension may have preceded conception in two patients in whom the last normotensive readings had been many months before, these data suggest that sustained elevations of blood pressure after a pregnancy are indicative generally of antecedent disease. The primary cause of death was not known in 41 of the patients. Congestive failure was the primary cause of death in 19 patients, cerebral vascular accident in 17, myocardial infarction in 7, uremia in 6, arteriosclerotic aneurysm of the aorta in 3, and miscellaneous unrelated causes in 7. Multiple complications are more frequent than single ones, and the time of onset and the intensity of any given complication vary enormously. Nevertheless, measured in terms of single complications, the average survival period was five or more years in each instance, except in patients with cerebral vascular accidents or papilledema or nitrogen retention.

American Journal of Ophthalmology, Chicago

34:1217-1350 (Sept.) 1951

Etiology and Treatment of Phlyctenular Keratoconjunctivitis. P. Thygeson. —p. 1217.
Anatomic Study of Periphery of Retina: Part I. Nonpigmented Epithelial Cell Proliferation and Hole Formation. C. C. Teng and H. M. Katzin. —p. 1237.
Pathology of Retinopathy of Prematurity: Retrolental Fibroplasia. P. Heath.—p. 1249.
*Retrolental Fibroplasia: Evaluation of Several Changes in Dietary Supplements of Premature Infants with Respect to Incidence of Disease. V. E. Kinsey and J. F. Chisholm Jr.—p. 1259.
Human Galactosemia Cataract: Report of Case. J. H. Enns.—p. 1268.
Galactosemia Cataract: Report of Case. H. F. Falls, G. H. Lowrey and W. C. Anderson Jr.—p. 1271.
Treatment of Retinoblastoma by Diathermic Coagulation. C. A. Perera. —p. 1275.
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Ocular Symptoms of Stellate Ganglion Block: Its Use in Treatment of Occlusion of Central Retinal Artery. T. O. Coston.—p. 1289.
Photophobia: Mechanism and Implications. J. E. Lebensohn.—p. 1294.
Influence of Microwaves on Certain Enzyme Systems in Lens of Eye. L. Daily Jr., E. A. Zeller, K. G. Wakim and others.—p. 1301.
Surgical Treatment of Esophoria. G. R. Stine.—p. 1307.

Retrolental Fibroplasia: Evaluation of Dietary Supplements.—While both clinical and experimental investigations now indicate that retrolental fibroplasia does not result from vitamin A deficiency in either the mother or infant, recent data still suggest that nutritional factors may play a causal role. Observations reported in this paper indicate that withdrawal of the water-miscible multiple vitamin preparation and iron used as supplements to the diet of premature infants weighing less than 4 lb. (1,814.37 gm.) at birth and substitution of only vitamins D and C in water-miscible form were without apparent effect on the incidence of retrolental fibroplasia. Administration of *dl*-alpha-tocopherol acetate in daily doses ranging from 30 to 150 mg. to premature infants at the time the eyes showed vascular changes characteristic of the early stages of retrolental fibroplasia did not reduce the incidence of the severe form of the disease significantly. Of the premature infants given 50 mg. of *dl*-alpha-tocopherol acetate prophylactically from birth three times a day vascular changes developed in 56%, and vitreous and retinal changes associated with retrolental fibroplasia also developed in 40%. Of the infants given *dl*-alpha-tocopherol acetate from birth the severe form of the disease involving membrane formation developed in 5%, as compared with 11% who did not receive *dl*-alpha-tocopherol acetate prophylactically. This difference in incidence is of doubtful significance. The average plasma level of vitamin E in infants at birth was found to be 0.6 mg. per 100 cc., suggesting that premature infants are not particularly deficient in vitamin E. No correlation was observed between the plasma level of vitamin E in the premature infant and the incidence of retrolental fibroplasia. The large proportion of patients who recover, apparently spontaneously, from retrolental fibroplasia suggests the need for caution in evaluating forms of therapy.

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dicals are available from 1940 to date. Requests for issues of
r date cannot be filled. Requests should be accompanied with
ps to cover postage (6 cents if one and 18 cents if three periodicals
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are not available for lending but can be supplied on purchase order.
ints as a rule are the property of authors and can be obtained for
nanent possession only from them.

asterisk (*) before a title indicates that the article is abstracted.

American Journal of Physiology, Baltimore

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Relation of Purified Pituitary Growth Hormone and Insulin in Regulation of Nitrogen Balance. A. E. Milman, P. DeMoor and F. D. W. Lukens.—p. 354.
Alloxan Diabetes in Albino Rat as Influenced by Sex. E. F. Beach, P. J. Bradshaw and N. R. Blatherwick.—p. 364.
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Preparation of Pancreas Derivative Having Lipotropic Activity. D. K. Bosshardt, L. S. Ciceresko and R. H. Barnes.—p. 433.
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Effect of Vagotomy on Gastric Secretion and Emptying Time in Dogs. F. Antia, C. E. Rosiere, C. Robertson and M. I. Grossman.—p. 470.

American Journal of Psychiatry, New York

108:161-240 (Sept.) 1951. **Partial Index**

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Adenomyoma of Pylorus Seen at Autopsy Two Years After Operation for Pyloric Stenosis in a Newborn Girl Baby. F. J. Waas, B. J. McCloskey and E. J. Sullivan.—p. 844.
*Prevention of Lymphedema of Upper Extremity After Radical Mastectomy: Preliminary Report. J. M. Parker.—p. 849.
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1951—Medicine's First Year of Grace: Convocation Address. E. L. Henderson.—p. 859.
Streptomycin Treated and Control Thoracoplasties: Follow-Up Study of 1947 Series. J. D. Murphy and H. E. Walkup.—p. 865.
Combined Retrograde and Fundal Dissection of Gallbladder in Cholecystectomy. M. B. Welborn.—p. 873.

Prevention of Lymphedema of Arm After Mastectomy.—Parker applied a snug compression bandage to the arm in 50 consecutive patients who were subjected to radical mastectomy in the course of the last three years. This bandage was left in place for eight weeks. The arm is bound to the chest by a fied Velpeau bandage until the fourth postoperative day, w the elastic compression bandage is applied. The extre wrapped from the distal flexor crease of the palm to as hi the breast dressing will permit. The bandage must be ap snugly enough to prevent any subsequent swelling or to eli ate any early postoperative edema. Some of the earlier pati have now been followed for three years or longer and in instance did noticeable swelling of the arm occur in those w wore the bandage continuously during the eight-week pe In two patients, who inadvertently removed the bandage a four and five weeks respectively, edema of the arm deve This substantiates the assumption that there is a critical pe of approximately eight weeks, when compression band of the arm will prevent the development of edema.

Annals of Surgery, Philadelphia

134:145-288 (Aug.) 1951

Peripheral Nerve Surgery: Results of 281 Cases Followed Six Months. E. G. Grantham and C. Pollard Jr.—p. 145.
Carcinoma of Breast: III. Results of Treatment, 1935-1942. Haagensen and A. P. Stout.—p. 151.
*Effects of Electric Currents on Canine Heart with Particular Ref to Ventricular Fibrillation. R. S. Mackay, K. E. Mooslin and Leeds.—p. 173.
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Revascularization of Brain Through Establishment of Cervical venous Anastomosis: Effects in Adult Institutionalized Patien Psychosis with Organic Brain Disease. G. Perrine, J. R. Reed, Belnap and M. B. Gordon.—p. 210.
Cardiac Arrest During Anesthesia: Review of Cases. R. Ament Papper and E. A. Rovenstine.—p. 220.
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Syphilitic Aneurysm of Subclavian Artery. R. A. Daniel Jr.—p.
Giant Hypertrophic Gastritis: Its Surgical and Pathologic Sig L. T. Palumbo, G. M. Rugtiv and K. R. Cross.—p. 259.
Emphysematous Cholecystitis: Report of Case with Successfu ment. W. C. Retterbush, M. B. Fishman, W. A. Baird a Collins.—p. 268.
Traumatic Retroperitoneal Rupture of Duodenum. R. B. Newel Rosenbaum and N. M. Canter Jr.—p. 277.
Simple Ulcer of Cecum. S. Liptom and E. D. Reisman.—p. 27
Gastrojejunitis Following Gastro-Enterostomy Performed in Inf Congenital Pyloric Stenosis. E. J. Donovan, G. Knox and V.—p. 283.

Effects of Electric Currents on Canine Heart: Ventric brillation.—Studies were undertaken to investigate some effects of electric currents on the canine heart with pa reference to ventricular fibrillation. Another aim was t mine the optimal current or currents required to stop v lar fibrillation and to examine the range of currents tha produce and stop this arrhythmia. It was hoped that the of a more useful and effective defibrillation apparatus c obtained. Observations were also made on the effects operatively administered quinidine on the production a sation of ventricular fibrillation. Approximately 500 alte current electric shocks of varying intensity and duratio applied across the exposed heart of 16 dogs. The aver sistance of the dog's heart was found to range from 4 ohms, with an over-all average of 51 ohms. This resista found to depend on the applied voltage, on the ampera somewhat on the duration of the impulse. It was found t rents of low value need be of long duration to produce tion, while currents of high value can be of either short duration to stop ventricular fibrillation. Currents varyi 0.09 to 0.4 amp. induced ventricular fibrillation but in stance produced defibrillation. Currents of 1.5 to 3. stopped fibrillation, and in no instance did they induce change from a fibrillating to a defibrillating current va found to occur at about 1 amp. A series of three to five A. C. shocks of 0.1 second duration applied at 0.5 to 1.0 intervals seemed to produce the optimum defibrillating authors describe a practical defibrillating unit devised on asis of their experimental data. The preoperative adminis- n of quinidine has proved helpful in decreasing the inci- of ventricular fibrillation and in facilitating defibrillation.

d, New York

6:777-866 (Sept.) 1951

od of Measuring Severity of Series of Cases of Hemolytic Disease Newborn. P. L. Mollison and M. Cutbush.—p. 777.
es in Rh Sensitization: III. Effect of Rh-Positive Pregnancies on Antibody Titer. A. S. Wiener, R. Nappi and E. B. Gordon.). 789.
IV. Persistance of Rh Antibodies in Serum of Sensitized Individuals. S. Wiener, R. Nappi and E. B. Gordon.—p. 799.
of Adrenocorticotropic Hormone and Cortisone in Treatment of ukemia and Leukosarcoma. M. C. Rosenthal, R. H. Saunders, L. I. iwartz and others.—p. 804.
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Blood Eosinophil Levels in Several Inbred Strains of Mice Under ndard Conditions. F. Halberg, J. J. Bittner and M. B. Visscher.). 832.
t of Dicumarol on Co-Thromboplastin, Factor in Blood Concerned h Conversion of Prothrombin to Thrombin. F. D. Mann, N. W. rker and M. Hurn.—p. 838.

t of Rh-Positive Fetus on Maternal Rh Antibody Titer.— ntibody titrations were carried out on 65 sensitized Rh- ive pregnant women carrying Rh-positive fetuses. Consid- that a rise in antibody titer antenatally could result only a leakage of fetal blood into the maternal circulation, ob- tions indicated that such a leakage occurs in about one f every three or four normal pregnancies. Determinations h antibody titer in 56 cases two weeks after the delivery as as antenatally revealed that fetal blood leaks into the ma- l circulation in about one out of three deliveries. Since ximately 40% of Rh-negative persons can be sensitized by njections of Rh-positive blood spaced four months apart, be calculated that in Rh-negative women who have re- d a previous injection of Rh-positive blood there is about nce in 12 or 13 that the first baby will be erythroblastotic. omen who have never received any injection of blood that sensitize them, the chance that the first baby will be roblastotic is negligible, because for this to occur it would ecessary for blood to leak into the maternal circulation atally on at least two occasions spaced four months apart, to prime the patient and the second time to stimulate the rance of antibodies. This never occurred in the authors' of cases. It was also calculated that in Rh-negative pri- as who have never received an injection of Rh-positive the chance of Rh antibodies appearing after the birth of h-positive baby is approximately 2 out of 45; other inves- rs reported an occurrence in 2 out of 65. It was further lated that in Rh-negative women who had never received jection of Rh-positive blood, the chance of their second being erythroblastotic is about 1 in 20, which agrees well the clinical observations. Five cases are described in detail der to illustrate the value of periodic antenatal Rh antibody ions in the management of sensitized Rh-negative women.

stance of Rh Antibodies in Serum of Sensitized Persons. riodic Rh antibody titrations were carried out over a d of one to four years in 60 sensitized Rh-negative women, e absence of additional exposure to Rh antigen. Results ed that once a person has become sensitized to the Rh r, Rh antibodies are demonstrable in the serum for periods least four years, provided that the techniques used are iently sensitive, such as the tests with enzyme-treated cells. veral of these women the history indicated that Rh sensi- ion had occurred many years previously, without any er exposure to the Rh antigen. A case is reported in which odies were found in the serum of an Rh-negative woman had never received an injection of blood and who had had last pregnancy 22 years previously. The authors' observa- suggest that, once a person has become sensitized to the actor, the antibodies persist in the body for the remainder e person's life.

Corticotropin and Cortisone in Leukemia and Leukosarcoma.—Forty-two patients with various diseases of leukocytic proliferation were treated with one or more courses of corticotropin (ACTH) or cortisone. Corticotropin was given to adults in doses of 15 or 20 mg. subcutaneously every six to eight hours; smaller doses were used in children. The dosage of cortisone ranged from 100 to 150 mg. daily, either intramuscularly or orally. Of 15 patients with acute or subacute lymphocytic leukemia, 2 died after only a few days of the institution of treatment, while of the remaining 13 who received adequate courses of treatment, there was objective and hematological evidence of well-defined remissions lasting 1 to 10 weeks in 9 (69%). Retreatment produced further remissions, but an eventual state of refractoriness was reached. Treatment must be intensive and prolonged. Of five patients with acute granulocytic leukemia, only one showed a slight clinical improvement with therapy. An actual acceleration of the process occurred in two patients. Two patients with acute monocytic leukemia did not respond to the treatment, and death seemed to be hastened. Of five patients with chronic lymphocytic leukemia, four were distinctly improved, particularly those with terminal leukemia with anemia, exfoliative dermatitis, or symptomatic hemolytic anemia. Of five patients with lymphosarcoma, all showed some degree of improvement. Features benefited were enlargement of liver, spleen or lymph nodes, symptomatic hemolytic anemia, and anemia. Of five patients with terminal Hodgkin's disease, three were notably benefited, particularly with respect to constitutional symptoms. There was, however, no fundamental alteration of the disease process. Only one of the five patients with multiple myeloma responded favorably to treatment; hyperglobulinemia and Bence-Jones proteinuria decreased to a variable extent in all patients with these symptoms. Undesirable effects of corticotropin therapy included psychoses, fluid retention, hypertension, convulsions, porcine obesity, acne, hirsutism, and diabetes mellitus. The relief of anemia, thrombopenia and leukopenia often brought about by corticotropin therapy suggests that in contradistinction to other forms of therapy in white blood cell proliferations, corticotropin stimulates rather than depresses the bone marrow. This is advantageous in the treatment of patients with deficient bone marrow, whether this deficiency may be due to the primary disease or previous therapy. The final evaluation of the place of corticotropin in the treatment of the various proliferative diseases of the leukopoietic tissues remains to be established.

Bulletin New York Academy of Medicine, New York

27:539-594 (Sept.) 1951

Experimental and Human Atherosclerosis: Possible Relationship and Present Status. M. Bruger and E. Oppenheim.—p. 539.
ACTH and Cortisone as Therapeutic Agents in Arthritis and Some Locomotor Disorders. O. Steinbrocker, S. Berkowitz, S. Carp and others.—p. 560.
Studies on Mechanism of Toxic Action of Newcastle Disease Virus. H. S. Ginsberg.—p. 581.
Studies on Relationship Between Theiler Group of Viruses and Intestinal Tract of Mouse. B. Mandel.—p. 583.
Chromatographic Analysis of Ragweed Pollen Extract. E. Perlman. —p. 586.

California Medicine, San Francisco

75:185-260 (Sept.) 1951

Surgical Treatment of Acquired Heart Disease. F. Gerbode.—p. 185.
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Experimental Investigations on Action of Antihistaminic Nasal Solutions: Preliminary Report. L. K. Gundrum.—p. 207.
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Some Viewpoints on Child Psychiatry. F. N. Anderson.—p. 213.
"Glossopharyngeal Breathing" by Paralyzed Patients: Preliminary Report. C. W. Dail.—p. 217.

Delaware State Medical Journal, Wilmington

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*Pituitary Cretinism. C. W. Dunn.—p. 207.
Study of Schizophrenic Family. F. A. Freyhan.—p. 213.
Surgical Intervention in Combined Physical Sterility and Psychic Impotence: Case Report. H. S. Howard.—p. 217.
Contraindications for Electric Shock Treatment: Need for Re-evaluation. H. G. De Cherney.—p. 226.
Sodium Amytal Addiction with Acute Toxic Psychosis. J. Fechner. —p. 231.
Syphilis in Negro Patients. C. L. R. Souder.—p. 232.
Note on Problem Child. W. S. Robbins.—p. 239.
Necessity of Individualization in Insulin-Coma Therapy. N. T. Arikian. —p. 243.
Psychological Study of Childhood Schizophrenia: Case Report. W. H. Tracy.—p. 246.

Pituitary Cretinism.—Dunn reports a case of pituitary cretinism in a girl aged 10½ years, and describes her therapeutic response to four and a half years' administration of oral anterior pituitary, thyroxin, and calcium glycerophosphate. In pituitary cretinism the cretinic facies and other constitutional and functional signs of severe hypothyroidism are the result of an anterior pituitary thyrotropic deficiency. The thyroid is free from pathological changes. Its secreting cells are small but functionally dormant because they are not being stimulated by the thyrotropic factor. The pituitary disturbance is presumed to be due to a cystic lesion, since the pituitary is enlarged equally in all diameters and there is no erosion of the enlarged sella turcica. Pituitary cretinism can be distinguished from thyroid cretinism by the roentgenologically enlarged sella turcica in the former, and the combination of pituitary infantilism, myxedema, and a mental development above that of the average thyroid cretin. This differentiation is important because of: (1) the greater degree of physical, sexual, mental, social, and economic development obtainable in pituitary cretinism from adequate anterior pituitary and thyroid therapy as compared to thyroid therapy alone, and (2) the greater tolerance of the thyroid cretin for thyroid extract. Doses well tolerated by the thyroid cretin have produced thyrotoxic reactions in all seven cases of pituitary cretinism seen by the author.

Georgia Medical Association Journal, Atlanta

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ect of Cortisone (Cortone) and Pituitary Adrenocorticotrophic (ACTH) Hormone on Pulmonary Diseases and Conditions. A. W. Hobby. —p. 367.
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Debunking the "T and A." (Tonsillectomy and Adenoidectomy). J. T. King.—p. 381.

Journal of Applied Physiology, Washington, D. C.

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Relation of Uropepsinogen Excretion to Gastric Pepsin Secretion in Man. H. D. Janowitz and F. Hollander.—p. 53.
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Diastase Not Constituent of Human Succus Entericus. C. J. Heifetz. —p. 63.
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Analysis of Factors Affecting Partial Pressures of Oxygen and Carbon Dioxide in Gas and Blood of Lungs: Theory. R. L. Riley and A. Cournand.—p. 77.
Id.: Methods. R. L. Riley, A. Cournand and K. W. Donald.—p. 102.
Respiratory Heat Exchange with Varying Temperature and Humidity of Inspired Air. J. W. McCutchan and C. L. Taylor.—p. 121.
Cross Education: Ipsilateral and Contralateral Effects of Unimanual Training. F. A. Hellerbrandt.—p. 136.
Hematological Effects of Chronic Low-Level Irradiation. J. Moshman. —p. 145.
*Effect of Prolonged Motionless Standing on Phases of Cardiac Cycle, Stroke Volumes, and Posterior-Anterior Diameters of Heart as Studied by Electrokymograph. E. E. Eddleman Jr., K. Willis and H. E. Heyer.—p. 156.

Effect on Heart of Prolonged Motionless Standing.—Electrokymographic studies were made on four normal male subjects standing motionless for 16 to 30 minutes. Apparent stroke volumes, posterior-anterior cardiac diameters, blood pressure, and phases of the cardiac cycle were determined at mately three-minute intervals until syncope. There were ently three stages in the physiological response to standing. First, there was a decrease in stroke volume diac posterior-anterior diameters during the first 4 to 12 probably the result of pooling of blood in the legs. there was a temporary rise in the stroke volume associated an increase in posterior-anterior cardiac diameters. Third, posterior-anterior cardiac diameters continued to increase a decline in stroke volume until syncope ensued. The mean pressure was maintained until the abrupt onset of syncope.

Journal of Aviation Medicine, St. Paul

22:261-338 (Aug.) 1951. **Partial Index**

Circulatory Adjustments to Reduced Barometric Pressure. J. L. and W. V. Whitehorn.—p. 278.
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Prevention of Injuries Due to Crash. H. A. Schroeder.—p. 306
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Journal of Bacteriology, Baltimore

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Biosynthesis of Citric Acid. S. F. Carson, E. H. Mosbach and Phares.—p. 235.
Simple Procedure for Preparation of Egg Medium for Mycob Tuberculosis. M. W. Wheeler.—p. 244.

Journal Clin. Endocrinology, Springfield, Ill.

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Metabolic Effects of Adrenocorticotropic Hormone (ACTH) in with Cushing's Syndrome and Acromegaly. L. P. Eliel and Pearson.—p. 913.
Comparison of 17-Ketosteroid Excretion in Cushing's Syndrome ciated with Adrenal Tumor and with Adrenal Hyperplasia. Forbes and F. Albright.—p. 926.
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*Effects of *p*-Hydroxypropiophenone on Thyroid Gland of Exper Animals. W. L. Money, V. Lucas, J. Fager and R. W. —p. 973.
Therapeutic Studies in Hyperthyroidism: Sodium 5-Iodo-2-Thiour Catz, D. W. Petit and P. Starr.—p. 978.
Metabolic Studies with I^{131} Labeled Thyroid Compounds: Dist and Excretion of Radiodiiodotyrosine in Human Beings. A. and F. R. Keating Jr.—p. 996.
Comparison of Single G-M Tube Method and Multitube Met Assaying I^{131} Uptake by Human Thyroid. M. Perlmutter, S. feld and M. Mufson.—p. 1012.
Levels of 17-Hydroxycorticosteroids in Peripheral Blood of Hum jects. D. H. Nelson, L. T. Samuels, D. G. Willardson and Tyler.—p. 1021.

Effects of p-Hydroxypropiophenone.—The effect of *p*-hy propiophenone on thyroid function was studied in 120 male rats and 40 3-day-old chicks. Of the 120 rats, 40 were a low-iodine diet, and 5 to 100 mg. of *p*-hydroxypropiop was injected subcutaneously as a saline suspension in these animals, once a day for 10 days. Ten untreated a served as controls. A second group of 40 rats were given laboratory food and 0.1% thiouracil in their drinking wa ese 40 animals, 30 were given 5 mg. to 100 mg. of *p*-hydroxy- opiophenone daily, while 10 with no injections served as con- ols. The third group of 40 rats were given a low-iodine diet, and of them received *p*-hydroxypropiophenone mixed in this od and/or 0.1% thiouracil in the drinking water. Thiouracil is withdrawn from the animals 48 hours before autopsy. The [illegible] was given for 10 days. Of 40 baby [illegible] diet, 30 were given *p*-hydroxypropio- enone and/or thiouracil in the diet. Twenty-four hours before topsy all animals were given 1 μc of carrier-free radioactive dine (I^{131}) intraperitoneally. Oral or parenteral administration rats on a low-iodine diet decreased the collection of I^{131} by thyroid. The compound failed to inhibit the formation of goiter in animals treated with thiouracil. Adrenal weights of rats receiving *p*-hydroxypropiophenone orally or paren- ally were increased. Pituitary gland weights of the rats were t significantly changed from control values. Results of these periments on rats and chicks indicated that whether given lly or parenterally the drug fails to change the response of thyroid to thiouracil treatment. It is concluded that *p*-hy- oxypropiophenone is not a specific inhibitor of pituitary rmones.

urnal of Experimental Medicine, New York

94:87-170 (Aug.) 1951

inetic Studies on Immune Hemolysis: II. Reversibility of Red Cell-Antibody Combination and Resultant Transfer of Antibody from Cell to Cell During Hemolysis. W. M. Bowman, M. M. Mayer and H. J. Rapp.—p. 87.
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kyl Nitrites: XV. Effect of Nitrites and Nitrates on Oxygen Uptake of Arterial Tissue. J. C. Krantz Jr., C. J. Carr and M. Y. Knapp.—p. 258.
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tihistaminics for Auricular Fibrillation.—Clinical experience th quinidine in the therapy of auricular fibrillation indicated a ed for a substitute that may be used intravenously, will not luce marked hypotension, and, in itself, will not cause ven- cular arrhythmias. McCawley and associates had demon- ated in previous experiments that the benzhydryl ether anti- taminics prevent ventricular arrhythmias in animals. On the sis of these experiments they used these compounds in thera- utic trials in clinical auricular fibrillation. They used the iso- ed auricle technique of Dawes to study the action of a series antihistamine compounds on the myocardial refractory riod. The antihistaminics studied prolonged the refractory riod at concentrations lower than that required by quinidine. brillation or flutter was initiated in the isolated auricle prepara- on by a localized traumatic infarct or by aconitine. It was und that quinidine and diphenhydramine can produce a sud- n conversion to a slow rhythm in these preparations. The thors feel that a variety of experimental techniques must be plied to this potentially useful antifibrillatory drug before it n be given a clinical trial. The present knowledge concerning e genesis of clinical auricular fibrillation is insufficient to per- it selection in one alteration of critical function of the auricle r study with antifibrillatory agents. Diphenhydramine seems orthy of clinical trial in patients with auricular fibrillation.

Journal of Urology, Baltimore

66:153-314 (Aug.) 1951. **Partial Index**

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*Present Urologic Status of the War-Time Paraplegic. J. A. Hutch and R. C. Bunts.—p. 218.
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Hemostasis in Transurethral Resections: Use of Adrenalin-Hyaluronidase Mixture. W. Baurys.—p. 265.
Results of Surgery in Tumor of Testis, Especially Radical Removal. G. F. Cahill.—p. 280.
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Manson's Schistosomiasis with Unilateral Involvement of Kidney. L. A. Sanjurjo and E. Koppisch.—p. 298.
Clinical Intravenous Nephrogram: Preliminary Report. B. Wall and D. K. Rose.—p. 305.

Translumbar Nephrocolopexy.—Translumbar nephrocolopexy was performed on 67 women between the ages of 20 and 45 and weighing between 80 and 110 lb. (36.3 to 49.9 kg.) with nephroptosis. Preoperative study of these patients revealed that they were nervous persons and that their usual complaints, besides the cardinal symptom of nephralgia, were loss of weight, gastric distress, constipation, and loss of appetite. It was observed that nephroptosis is not uncommonly associated with enteroptosis or a downward displacement of the colon, particularly in women, in whom these conditions are more prevalent. The usual lumbar incision was made, and the Lowsley ribbon gut technique was employed for the nephropexy. After this procedure, the peritoneum was opened, the appendix removed, and the anterior band of the ascending colon at the level of the hepatic angle sutured to the superior angle of the peritoneal wound and to the ribbon gut at the inferior pole of the kidney. Postoperative follow-up showed that all the patients were improved clinically, as shown by the absence of symptoms and by gain in weight ranging from 11 to 45 lb. (5.0 to 20.4 kg.).

Urologic Status of Wartime Paraplegics.—Of 170 paraplegic patients with spinal cord injuries resulting in neurogenic bladder, 85 were injured during or before World War II. Considering the entire group, an average of 4.04 years had elapsed since the injury was sustained. Of the 170 patients, 142 had a voiding trial and 28 for one or another reason did not. Of the 142 patients, 73 had only mild disturbances of bladder function, with emptying no oftener than every two hours, and 69 had severe disturbances. Of the 142, 19 had cervical lesions, and 12 of these (63%) had relatively good bladder function, 60 had dorsal lesions, and only 22 of these (37%) had relatively good function, while of the 63 with lumbrosacral lesions, 39 (62%) had relatively good function. Thus, the condition of patients with lower cord lesions was as good as or better than those with higher cord lesions. Of 82 patients whose bladders were drained by urethral catheters during the period of spinal shock, the bladders eventually showed relatively good function in 49 (60%), while of 51 similar patients whose bladders were drained by suprapubic catheters, in only 18 (35%) was there clinically good function. It was concluded that urethral drainage offers a better opportunity for bladder recovery than does suprapubic drainage. Analysis of factors responsible for the failure of the paralyzed bladder to regain its function in 69 of the 142 patients revealed that peripheral spasm and contracted bladders were the commonest causes for this failure. Other factors included lower urinary tract complications. A study of the changes occurring in the upper urinary tracts of the paraplegic patients with the passage of time showed that changes, as judged by hydronephrosis, hydro-ureter, and calycectasis, rose rapidly during the first 24 months and then tended to level off. Functional damage, as judged by excretory urography, was not pronounced during the first three years but then increased rapidly. Causative factors, such as stones and infections, were common during the first two years and then became less and less important. The curve plotting their incidence followed closely the curves denoting anatomic damage to the kidneys and ureter. The incidence of vesical ureteral reflux was not great until the end of the third year, and then it rose sharply, paralleling closely the curve denoting loss of renal function. It was also noted that more damage to the upper urinary tract occurs in patients whose bladders function poorly.

Medical Annals of District of Columbia, Washington

20:465-522 (Sept.) 1951

Medical Aspects of Civil Defense in Biologic Warfare. V. H. Haas. —p. 465.
Safety Factors in Clinical Use of Radioisotopes. C. C. Powell.—p. 471.
Changing Emotions of the Climacteric. F. S. Rogers.—p. 475.
Treatment of Menopause. R. Bieren.—p. 478.
Menorrhagia—Psychosomatic Considerations: Report of Case. S. A. Steiner.—p. 483.
Ovarian Pregnancy: Report of Case. J. W. Pearson Jr. and C. E. Horton.—p. 485.

Minnesota Medicine, St. Paul

34:725-828 (Aug.) 1951

Nasal Allergy. W. T. Wenner.—p. 745.
Skin Allergies. E. M. Rusten.—p. 748.
Allergy in Infants and Children. H. F. Flanagan.—p. 752.
Allergic Asthma. L. E. Prickman.—p. 755.
Gastrointestinal Manifestations of Allergic Disease. C. N. Hensel. —p. 757.
Psychogenic Factors in Allergic Disease. M. G. Fredricks.—p. 762.
New Grooved Enucleation Implant. C. Hymes.—p. 771.
Management of Intermittent Exotropia. T. G. Martens.—p. 775.

34:829-932 (Sept.) 1951

SYMPOSIUM ON CORTISONE AND ACTH

Introduction. H. F. Polley.—p. 849.
Use of Cortisone and ACTH *in* Management of Severe Bronchial Asthma and Nasal Allergy. G. A. Koelsche, C. K. Maytum, L. E. Prickman and others.—p. 850.
Effects of Cortisone and ACTH on Periarteritis Nodosa. R. M. Shick, A. H. Baggenstoss, B. F. Fuller and H. F. Polley.—p. 852.
ute Rheumatic Fever Treated with Cortisone and ACTH: Report on 14 Cases. H. L. Smith and A. R. Barnes.—p. 854.
ummary. H. F. Polley.—p. 855.
Diagnostic Pitfalls in Cardiology. H. B. Sprague.—p. 856.
Surgical Treatment of Varicose Veins. L. D. Hilger.—p. 860.
Surgical Treatment of Diseases of Heart and Great Vessels. J. W. Kirklin.—p. 865.
Vertigo. H. L. Williams.—p. 871.
Pharyngeal Infection Complicated by Erosion of Internal Jugular Vein. F. G. Folken.—p. 877.

New England Journal of Medicine, Boston

245:275-316 (Aug. 23) 1951

•Herpangina: Clinical Studies of Specific Infectious Disease. R. H. Parrott, S. Ross, F. G. Burke and E. C. Rice.—p. 275.
Cancer of Uterine Cervix: Study of 432 Cases Seen at the Rhode Island Hospital, 1933-1943. S. I. Raphael and G. W. Waterman.—p. 281.
Treatment of *Chronic Ulcerative Colitis with Pituitary Adrenocorticotrophic* Hormone (ACTH): Clinical Study of 28 Cases. J. M. Elliott, E. D. Kiefer and L. M. Hurxthal.—p. 288.
•Administration of Cortisone by Aerosol Method in Treatment of Bronchial Asthma. M. L. Gelfand.—p. 293.
Treatment of Fractures and Dislocations; with Note on Anesthesia. E. F. Cave, C. R. Rowe and D. P. Todd.—p. 295.

Herpangina, a Specific Infectious Disease.—A disease entity characterized by fever with vesicular or ulcerated throat lesions and chiefly affecting children has been prevalent in the District of Columbia and its environs for many summers. Physicians agreed that the disease was highly contagious and usually ran a benign, self-limited course. It is now apparent that this disease is herpangina, a specific entity described by Zahorsky in 1920. Studies on a possible virus etiology were begun by Huebner, who succeeded in isolating viruses of the Coxsackie group A from both throat washings and stools. The present study was carried out in the outpatient department of the Children's Hospital in Washington, D. C. All children with fever and pharyngitis examined, and those with the characteristic vesicular or ated lesions in the throat were further studied. Labor studies included throat and stool cultures for predomi bacterial organisms, throat and anal swab and stool speci for virus isolation, venous blood for virus-antibody determi tions, white blood cell and differential counts. Each patient seen at two-day intervals thereafter, until the illness had subsi A second blood specimen was drawn for convalescent antibo assay 10 to 20 days after the onset of illness. The ages of 22 patients ranged from 6 months to 8 years. There was a re tively high incidence in siblings (8 of 22). The authors present case report illustrating the course of herpangina. Viruses recovered in 19 of the 22 cases and showed four immunologi *distinct strains among group A Coxsackie viruses.* Neutrali antibodies against homologous strains of virus were present all convalescent serums, and a rise in titer was demonstra during illness in 70% of cases.

Cortisone in Aerosol Form.—Gelfand presents observations five patients with bronchial asthma of the mixed variety (trinsic and extrinsic bronchial asthma) treated with cortisone aerosol form. The method of dilution was similar to that gested by Reeder and Mackey—1 cc. of cortisone mixed wi cc. of isotonic sodium chloride solution. The dosage was 1 of *this mixture, inhaled* every hour for a period of 10 ho daily, a total of 50 mg. per day. Treatment lasted two wee with beneficial effect in four out of five cases. The patient *responded unfavorably* was a 65-year-old woman who severe emphysema and pulmonary fibrosis. Relapses occur in three of the four successfully treated cases after the fo to fifth day following the cessation of therapy. Administra of the drug in a similar manner for another 10 days to *weeks, however, again produced amelioration* of sympto The dosage employed was considerably less than that reco mended by other authorities; however, since relapses have b noted by many writers, even after the administration of la amounts over longer periods of time, low dosage cannot be cause of the relapses in these cases. The exact optimal dos cortisone is not known; it depends on the severity of the dis rather than on the age and weight of the patient. The opti *dose is the one that is capable of controlling the clinical* co tion without producing undesirable side-effects. Since the br chospasm in the above cases was relieved by 50 mg. of nebuli cortisone without metabolic alterations, it may be assumed 50 mg. given in aerosol form constituted the optimal dos in four of the five patients treated.

New Jersey Medical Society Journal, Trenton

48:399-444 (Sept.) 1951

Symptoms Following Biliary Surgery: Appraisal of Their Etiology *Correction.* E. J. *Halligan,* L. L. Perkel, J. K. Catlaw and L. Tr —p. 401.
Management of Allergic Conditions of Upper Respiratory Tract. Schaffer and E. E. Seidmon.—p. 409.
Wandering Spleen with Torsion of Pedicle. M. N. Neibrief and E. Parsonnet.—p. 414.
Unusual Course and Thickening of Round Ligament of Liver Ca *Symptoms Simulating Pyloric Stenosis.* L. E. De Yoe and J. Ianacone.—p. 417.
Family Doctor's Role in Children's Conduct Disorders. R. D. Re —p. 418.
Radioisotopes in Medicine. H. D. Diamond.—p. 420.
Blood Transfusion in Infants. T. K. Rathmell and G. Mora.—p. 4
Chronic Nonspecific Prostatitis. H. M. Ill.—p. 426.

New Orleans Medical and Surgical Journal

104:43-88 (Aug.) 1951

Some Present Day Concepts of Congestive Heart Failure and Its T ment. G. R. Herrmann, J. A. Ortiz, G. IV H. C. Hermann and H Reveley.—p. 43.
Cancer of Rectum: Its Recognition and Treatment. F. W. Rankin.—p.
Nontraumatic Rupture of Common Bile Duct: Two Case Reports. Gariepy.—p. 55.
Ureterosigmoid Anastomosis and Cystectomy. J. J. Cordonnier.—p. 6
Value of Electroencephalographic Examination. H. T. Posey.—p. 70

ew York State Journal of Medicine, New York

51:1759-1854 (Aug. 1) 1951

ractical Aspects of Resuscitation of the Newborn. B. E. Cappe and I. M. Pallin.—p. 1797.
ardiac Resuscitation. E. C. Hanks and E. M. Papper.—p. 1801.
travenous Pentobarbital Sodium-Ethylene Anesthesia. V. Coviello, S. Goldenberg and R. W. Robertazzi.—p. 1815.
xperiences with Intravenous Gelatin. R. G. Hicks and V. J. Collins. *—p. 1819.*
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rteriovenous Anastomosis for Peripheral Vascular Disease. H. L. Skinner and E. F. Parsons.—p. 1843.

51:1855-1958 (Aug. 15) 1951

echanisms Involved in Production of Pulmonary Hypertension. D. M. Spain.—p. 1903.
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ulmonary Calcification and Histoplasmin Sensitivity in New York State. G. A. Cronk.—p. 1919.
roblem of Peptic Esophagitis. W. H. Potter, S. M. Schaer and J. D. Stewart.—p. 1924.
rt of Medicine in Management of Multiple Sclerosis. A. Gallinek. —p. 1930.
ureomycin Therapy in Dermatoses of Viral Etiology: Preliminary Observations. J. Dougherty.—p. 1932.
itfalls in Evaluating Drug Therapy of Parkinsonism: Comparative Effects of Rabellon and Artane. H. Vollmer.—p. 1933.
lusive Mental Cases: Parents and Children. B. Liber.—p. 1939.

valuating Drug Therapy of Parkinsonism.—The personality ttern and suggestibility of the patient with Parkinsonism, as ell as unintentional suggestive influences of the investigator aluating new drugs for the treatment of this disease, freently make the latter's task difficult. A review of the literature monstrates that the first favorable reports usually cannot be nfirmed by subsequent investigators. The literature on caraiphen hydrochloride ("panparnit") shows a gradual decline in e percentage figures for favorable results from 100 to 0. The thor's experience with this drug is limited to five patients with stencephalitic Parkinsonism previously stabilized over a riod of years with optimal doses of a compound of belladonna kaloids (rabellon®) and requesting a trial with caramiphen drochloride. None of these patients was improved. All owed increased tremor and returned to their previous medican with the belladonna alkaloids. In 10 patients, 7 with postcephalitic Parkinsonism, 2 with idiopathic and 1 with arteriolerotic Parkinsonism, the belladonna alkaloids were slowly ithdrawn, while 3-(1-piperidyl)-1-phenyl-1-cyclohexyl-1-pronol hydrochloride (artane®) was substituted in increasing nounts, until the optimal dose was reached. None of the paents was objectively improved with artane® as compared to e belladonna alkaloids. Artane® seemed to be less effective than e latter drug in the control of tremor, and its disagreeable ntral nervous system side-effects, leading to confusion, disrientation, and delirium, are not negligible. To avoid erroneous nclusions in the clinical evaluation of a new drug several facrs should be taken into consideration: 1. Patients previously eated with adequate doses of an effective drug are frequently ut only temporarily "improved" by changing to a new even ss effective drug. 2. A skeptical attitude in presenting a new eatment to the patient may psychologically interfere with an bjective improvement attainable by an effective drug. 3. Psychoenic, subjective improvement may, perhaps through hypohalamic mediation, favorably influence the objective symptoms oo, but such improvement may be maintained for only a limted period. 4. Subjective improvement may be regarded as a eal therapeutic success in Parkinsonism but cannot justifiably e ascribed to the pharmacologic action of a drug, unless it is ccompanied by objective and sustained improvement of the eurological symptoms.

Northwest Medicine, Seattle

50:561-648 (Aug.) 1951

Diagnostic and Therapeutic Nerve Block in General Practice. J. S. Lundy.—p. 577.
Mumps Myocarditis. M. Z. Irvin, T. H. Bacharach and R. L. Pullen. —p. 583.
Peristaltic Enema. H. K. Grimm.—p. 586.

50:649-740 (Sept.) 1951

Influence of Rutin upon Diabetic Retinitis. L. J. Palmer, N. F. Flaherty, J. H. Crampton and R. H. Johnson.—p. 669.
Venous Obstruction in Upper Extremity. M. H. Querna.—p. 671.
Status of Surgical Treatment of Hypertension. G. E. Sanford.—p. 673.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

77:589-888 (Aug.) 1951. **Partial Index**

Primary Amide Groups of Human Hemoglobin. S. R. Dickman and I. H. Moncrief.—p. 631.
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Changes in Acetylcholine Content of Brain During Exposure to Cold. L. J. Milch, H. F. Midkiff, P. Matthews and H. I. Chinn.—p. 659.
Inhibition of Hemagglutination of Columbia-SK Virus by Human Polio-Convalescent Sera. C. W. Jungeblut and B. Horvath.—p. 672.
Serum Iron and Hemoglobin Values of 275 Health Women. M. Chaloupka, R. M. Leverton and E. Diedrichsen.—p. 677.
Effect of Lactate on Renal Tubular Transfer of *p*-Aminohippurate in Man. R. K. McDonald, N. W. Shock and M. J. Yiengst.—p. 686.
*Evaluation of Segmental Gastric Resection for Peptic Ulcer. F. S. Cross, D. J. Ferguson and O. H. Wangensteen.—p. 689.
Effect of ACTH and Cortisone on Phagocytosis. S. B. Crepea, G. B. *Magnin and C. V. Seastone.—p. 704.*
Effects of Cortisone and 11-Desoxycortisone on Pain Thresholds in Man. R. E. Lee and C. C. Pfeiffer.—p. 752.
Aqueous Humor as Tissue Culture Nutrient. W. S. Albrink and A. C. Wallace.—p. 754.
Experimental Pyelonephritis and Hypertension in Rats. J. K. Spitznagel and H. A. Schroeder.—p. 762.
Technic for Measurement of Radioactive Iodine (I-131) Uptake by Human Thyroid Gland. J. U. Hidalgo, S. B. Nadler, T. Bloch and R. T. *Nieset.—p. 764.*
Serologically Reactive Material in Spinal Fluid, Blood, and Urine from Human Case of Cryptococcosis (Torulosis). J. M. Neill, J. Y. Sugg and D. W. McCauley.—p. 775.
Hypervitaminosis A: Adjunct to Present Methods of Vitamin A Identification. S. B. Wolbach and C. L. Maddock.—p. 825.
Effect of Unrelated Vaccines on Localization of Paralysis in Mouse Encephalomyelitis. D. J. Dean, S. M. Cohen and G. Dalldorf.—p. 834.
Urinary Excretion of Vitamin B_{12}, Folic Acid, and Citrovorum Factor *in Human Subjects on Various Diets. U. D. Register and H. P.* Sarett.—p. 837.
Heterocyclic-Substituted Sulfone with Activity Against Mycobacterium Tuberculosis. R. H. Vogel and M. J. Kopac.—p. 859.
Role of Bile and Pancreatic Juice in Production of Esophageal Erosions and Anemia. F. S. Cross and O. H. Wangensteen.—p. 862.
Effect of Inhaled Cigarette Smoke on Production of Peptic Ulcer in Dog. R. W. Toon, F. S. Cross and O. H. Wangensteen.—p. 866.

Segmental Gastric Resection for Peptic Ulcer.—For many years surgeons have done a three-quarter gastric resection for peptic ulcer in which the entire gastrin-containing area of the stomach along with a large segment of the acid-secreting area is excised. In order to overcome some of the limitations of these methods, it was proposed to reverse the usual procedure of gastric resection by leaving an antrum intact, excising a larger fragment of the acid-secreting area, and leaving not more than 10% nor less than 5% of the total gastric area in the fundic segment. Diminution of acid secretion is then assured, and optimal conditions are afforded for neutralization and digestion by bile and pancreatic juice. Moreover, it was hoped that segmental gastric resection might obviate some of the problems of the dumping syndrome. Experiments on dogs revealed that an extensive segmental gastric resection, in which 74% of the acid-secreting portion of the stomach by weight is excised, leaving 10% of the entire stomach as the upper fundic pouch anastomosed to the antrum, will protect against the ulcer caused by histamine in beeswax in the dog. A segmental resection in which 25% of the stomach by weight is left as the fundic pouch will not protect against the histamine in beeswax ulcer, whether or not a complemental vagotomy is done.

Texas Reports on Biology and Medicine, Galveston

9:391-678 (No. 3) 1951. **Partial Index**

Premenstrual Tension—Rational Treatment. W. Bickers and M. Woods. —p. 406.
Studies on Antibiotics and Normal Intestinal Flora. S. M. Finegold. —p. 432.
Precautions in Use of Phosphate Buffers When Studying Living Tissues in Vitro. I. Galinsky.—p. 445.
*Critical Evaluation of Anti-Reticular Cytotoxic Serum (ACS). T. S. Gardner and D. M. Speaker.—p. 448.
Fat in Diet in Relation to Nutrition of Dog. A. E. Hansen and H. F. Wiese.—p. 491.
Effect of Thymic Extract on Transplanted Sarcoma in Rats. J. B. Loefer and N. G. Gilles.—p. 571.
*Effect of Adrenal Cortical Steroids on Circulating Antibodies in X-Radiated Animals. R. B. Mitchell, J. D. Fulton, J. M. Talbot and A. W. Kimball.—p. 576.
*Serum Antidiuretic Activity in Essential Hypertension. L. M. De Paiva, O. B. Henriques and S. B. Henriques.—p. 594.
Influence of General Hypoxia on Local Cold Injury. J. Pichotka, R. B. Lewis and U. C. Luft.—p. 601.
Sequence of Increasing Local Cold Injury. J. Pichotka, R. B. Lewis and E. Freytag.—p. 613.
Critical Analysis of Neomycin as Intestinal Antiseptic. E. J. Poth, R. G. Martin, S. M. Fromm and others.—p. 631.
Modification of Acute Radiation Syndrome: 1. Alteration by Neomycin-Sulfathalidine Therapy. E. J. Poth, F. J. Wolma, R. G. Martin and others.—p. 645.
Accuracy of Death Certificates for Establishing Frequency of Cancer as Shown by Autopsy. R. H. Rigdon and H. Kirchoff.—p. 652.
Physical Therapy in Fractures. W. A. Selle.—p. 660.

Antireticular Cytotoxic Serum.—Gardner and Speaker review the extensive literature on the antireticular cytotoxic serum (ACS) of Bogomolets and find that it has only been partially investigated in the United States. The effects of the serum, both cytotoxic for large doses and stimulating for small doses, have been verified by tissue culture techniques. The stimulating effects in wound and fracture healing have been verified. The relief of pain in human cancer and the suppression of the Brown-Pearce carcinoma in the rabbit have been demonstrated. The suppression of rickettsia in animals has been verified. Improvements in the preparation of the serum have been accomplished, and the optimum stimulating dosage level has been established at 0.1 to 0.15 BU (Bogomolets unit) per kilogram of weight, given in a single dose and repeated about every three weeks in man and every two to three weeks in mice, rats, dogs, guinea gs, and rabbits. Antireticular cytotoxic serum has been consively demonstrated to have little, if any, value in the treatent of arthritis. The possible use of antireticular cytotoxic serum as an anti-aging agent has not been investigated in America. Bogomolets' hypothesis about the role of the recticuloendothelial system has been neither proved nor disproved. However, the possible practical clinical value of antireticular cytotoxic serum does not depend on the strength of this hypothesis. It may be established or refuted independently. Further investigation is recommended to enlarge the possible field of use of antireticular cytotoxic serum and to facilitate the practical development and production of the serum, should this be warranted on the basis of successful clinical trials.

Adrenal Cortical Steroids and Antibodies in Irradiated Animals.—The detrimental effects of roentgen irradiation on antibody production are well known. This paper deals with the effects of adrenal cortical extracts as well as stimulating doses of specific antigen on circulating antibody titers in irradiated animals previously immunized against Salmonella typhosa. In the first experiment, rabbits which received stimulating doses of antigen during the 21-day observation period responded with slight increases in antibody titers. Those receiving no stimulating doses showed no regular antibody changes. Animals receiving adrenal cortical extract at selected intervals following immunization showed no significant changes as compared to controls, whereas, in those given 500 r whole body roentgen irradiation, without follow-up stimulating antigen, circulating antibody titers decreased. The administration of adrenal cortical extract to irradiated animals resulted in a significant maintenance of antibody titers for most of the treatment period. Similarly, animals given a stimulating dose of antigen immediately before irradiation appeared better able to maintain their antibody titers than irradiated animals without the stimulating doses of antigen. In the second experiment two treatment factors were used in rabbits previously immunized against Salmonella typhosa: roentgen irradiation and adrenal cortical extract. Repeated postra doses of adrenal cortical extract maintained antibody titers nificantly higher than in those irradiated animals that did have the extract. These data indicate that it is possible to the usual course of antibody response following whole bo ionizing radiation injury and that, in the irradiated animal, cir lating antibodies may be increased by giving adrenal corti extract after irradiation.

Antidiuretic Activity of Serum in Hypertension.—The exp mental production of hypertension by administration of post pituitary preparations indicates that this gland might play a p in human hypertension. Since the neurohypophysis is under t influence of hypothalamic centers, the authors thought that d ferences in antidiuretic activity of serum could be detected b tween the neurogenic and established phases of essen hypertension. Serums of 16 women with "neurogenic" hyp tension and 12 patients with established essential hyperten were studied. The serums of 14 subjects with normal blood p sure served as controls. The tables recording the results of t tests on the three groups of persons reveal that, while nor serum caused a water retention ranging from 1.7 to 4.5 ml. p 100 gm. of body weight (average 2.4) with only one case ab 2.7, neurogenic hypertensive serum caused a retention from to 4.6 (average 3.2) with only three values below 2.7. Establis essential hypertension produced a retention of 2.6 to 4.3 (a age 3.5), with only one value below 2.7. The authors concl that even normal serum has antidiuretic activity when compa with isotonic solution of sodium chloride, but the water re tion caused by the serums of patients with essential hyperten was significantly higher than that produced by normal ser independently of the neurogenic character of the disease.

Virginia Medical Monthly, Richmond

78:455-524 (Sept.) 1951

*Visceral Lesions of Scleroderma. J. M. Hutcheson.—p. 459.
Diagnostic Problems of Chest. D. B. Cole and L. J. Buis.—p. 465.
Cystadenomas of Pancreas. M. K. King and C. R. Sullivan.—p. 4

Visceral Lesions of Scleroderma.—In recent years numer studies have appeared describing involvement of organs o than the skin in patients with scleroderma and emphasizing fact that scleroderma is a generalized systemic disease. cause of scleroderma is unknown, but the frequent associa of scleroderma with Raynaud's phenomenon has suggested vasospasm may be a primary event. However, this factor is demonstrable in a large proportion of cases of scleroderma. in cases in which manifestations of Raynaud's disease are p ent, they often follow rather than precede hardening of the s It seems likely that scleroderma results from some cause affects connective tissue throughout the body. Some obser have separated a group of patients with scleroderma of a which they designate acrosclerosis. In these patients, Rayna phenomenon is prominent, and skin changes are confined lar to the face, chest, and extremities. Scars of unusual type inv ing the myocardium have been described in scleroderma. Th differ from those caused by vascular disease in that they are found in the arteries. The lesions are characterized as focal o growth of fibrous tissue, with secondary destruction of o myocardial structures. In addition, there is pericardial and endocardial fibrosis. Cystic sclerosis and compact pulmon sclerosis are the two types of pulmonary lesions that are fo in patients with scleroderma. In the digestive tract, atroph the muscular layers and replacement by fibrous tissue are changes characteristic of scleroderma. The esophagus app to be most frequently affected, but similar changes have b observed in the walls of the alimentary canal throughout course. Although scleroderma is relatively uncommon, invo ment of structures other than the skin is frequent. Seven nine patients had symptoms pointing to cardiac, pulmonary digestive involvement, and two showed evidence that all t systems were affected. Visceral changes may constitute the m serious aspect of the disease.

FOREIGN

ta Chirurgica Scandinavica, Stockholm

101:419-508 (July 27) 1951. Partial Index

currence of Pleural Effusion Following Biliary Surgery: Clinicoroent-
enologic Study. H. Ekman and P. Ödman.—p. 419.
currence Rates of Lateral Inguinal Hernia in Adults. S. Borgström.
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atment of Headache After Spinal Anesthesia with Intraspinal Injec-
ion of Physiological Saline Solution. T. Ekström.—p. 450.
ver Cervical Nerve Roots and Their Investments. R. Frykholm.
—p. 457.
umonectomy and Lobectomy for Pulmonary Carcinoma with Particu-
ir Reference to Complications. F. Therkelsen.—p. 472.
nplications and Technical Problems of Medullary Nailing. I. Palmer.
—p. 484.

urrence in Inguinal Hernia.—Borgström reviews observa-
s on men over 25 who were operated on for unilateral, re-
ible, acquired inguinal hernia at the Surgical Clinic in Lund
r the 13 year period from 1936 to 1948 inclusive. Question-
es were sent to 980 patients who had had no immediate
operative complications. Fifty-six had died, and an addi-
al 180 failed to answer the questionnaire, so that 744 cases
ld be evaluated. Recurrences were reported by 88 of the
ents, and over half of these occurred within the first year.
patient's age and weight at the time of operation played no
in the recurrence. Patients doing manual work on the
le had a lower recurrence rate; however, their recurrence
rose with the size of the hernia, which was not the case in
nonmanual workers, whose over-all recurrence rate was
ner. When the plastic repair of muscle was done ventrally
he cord and the latter was taken out medially, the recur-
ce rate seemed lower than when the repair was done dorsally
he cord and the latter was led out laterally. Furthermore,
skill of the surgeon seemed to influence the recurrence rate,
hat patients who had a less experienced surgeon had a higher
. In evaluating the influence of postoperative recumbency
recurrence, only those in whom the recurrence followed the
ration within a year were considered. Recurrence was high-
in those whose postoperative recumbency was less than three
s. Since the period of hospitalization in these patients was
one day shorter (5.6 compared to 6.6) than in those who
e recumbent three or more days, the shortening of post-
rative recumbency after hernia operations does not imply
eat saving in hospital beds. Nor did shortened periods of
mbency and hospitalization result in a corresponding re-
tion in the period of convalescence. The recurrence rate in-
sed with the length of the convalescence period, the lowest
rrence rate being observed in those whose period of con-
scence was at the most four weeks.

dullary Nailing.—The 182 cases in which medullary nailing
done at a Stockholm hospital between 1944 and 1950 in-
led cases of fracture of the femur, tibia, humerus, radius,
a, metacarpus, and clavicle. The one death cannot be at-
uted to the method. Two cases of pulmonary fat embolism
one case of thrombosis occurred, all in femoral fractures.
the basis of a review of the technical problems and of the
plications encountered in these cases, Palmer stresses the
owing points: 1. The method requires great technical ex-
ience and should not be attempted by those who only occa-
nally deal with fractures. 2. Medullary nailing should be used
y in cases in which it promises good results; comminuted
ctures or those close to a joint are not suited for this treat-
nt. 3. Open reduction is preferable to tedious methods of
sed reduction. 4. The nail should never be driven in with
ce. It should be removed and replaced by a new one if diffi-
ty is encountered in inserting it. 5. In femoral fractures the
l should be driven in from the tip of the trochanter after
eful determination of the direction. 6. Diastasis should be
oided. 7. A nail that bends should be replaced with a new
e, at least in femoral fractures. The fracture should be ex-
ored and bone chips inserted if union is delayed. Improvised
unsuitable nails or nails not made of absolutely reliable ma-
ial should never be used. The nail should be equipped with
extraction hole for removal.

Acta Paediatrica, Stockholm

40:259-370 (July) 1951. Partial Index

Precocious Puberty: Clinical Picture and Remote Prognosis. H. O. Mossberg.—p. 261.
Nutritional Deficiencies, Diseases and Poor Social Conditions During Pregnancy as Cause of Neonatal Mortality and Illness During First Year of Life. C. Gyllenswärd.—p. 285.
*Fibrocystic Disease of Pancreas, Disorder of Autonomic Nervous System. H. Bergstrand.—p. 349.

Fibrocystic Disease of Pancreas.—The occurrence of cystic fibrosis of the pancreas is reported in two female infants. The first patient died at the age of 7 weeks and the second at the age of 20 months. In the first, necropsy revealed agenesis of the ganglion cells in the distal ileum and in the entire colon and rectum. No Paneth cells were present in the small intestine. The mucosal glands were not visibly distended but contained round concrements of inspissated secretion, the central parts of which stained like calcium salts. The intestinal contents included many concrements of this kind. The pancreas showed, as in other early cases, only minor lesions; the large ducts were not dilated, but the lumen of the small ducts and the acini contained acidophilic, inspissated, partly lamellated secretion and were dilated. In the second case, microscopic examination did not reveal any abnormalities of the sympathetic nervous system. As in some previously described cases, the mucous glands of the respiratory tract were distended and contained inspissated secretion, but goblet cells were almost absent. The microscopic appearance of the lungs did not resemble that in asthma, a disease in which the parasympathetic nervous system has been considered as overstimulated. The parenchyma of the pancreas was largely replaced by connective tissue, and only a few dilated ducts and acini were present. The cells of the epithelial lining were flattened, and the lumen contained varying amounts of laminated material that stained like mucus and occasionally like fibrin. These two cases strongly support Farber's concept that the basic disorder in cystic fibrosis of the pancreas is an imbalance of the autonomic nervous system. In contrast to Farber, the author considers the disorder as a dysfunction or hypofunction rather than a hyperfunction of the parasympathetic nervous system.

Ann. Chirurgiae et Gynaecologiae Fenniae, Helsinki

40:79-134 (No. 2) 1951. Partial Index

Chronic Gastritis. K. Setälä.—p. 79.
Para-Ovarian Tumors. P. Vara and T. Kangas.—p. 97.
*Seasonal Fluctuations in Reaction Sensitivity of Xenopus Laevis to Chorionic Gonadotrophic Hormone. S. Toivonen, O. Harjola and T. Tikkanen.—p. 103.
Spontaneous Obstruction of Gastroenterostomy and Complete Detachment of Intestinal Loop. A. Hellens and P. Nummi.—p. 121.
Abdominal Panhysterectomy with Dissection in Paracervical Layer by Aldridge's Method. H. Zilliacus.—p. 132.

Seasonal Changes in Sensitivity of Toad to Gonadotropic Hormone.—In Finland, where the African toad, Xenopus laevis, has been used widely for pregnancy tests since 1947, it was observed that particularly during the winter false negative pregnancy reactions resulted in some cases. Since Swiss investigators had observed a similar tendency on the part of this toad, Toivonen and his collaborators investigated the seasonal fluctuations of the reaction threshold of this toad to gonadotropic hormone. Every month, for a year, they tested the reaction threshold of Xenopus laevis toads with a chorionic gonadotropic hormone preparation. They found that the reaction susceptibility of the toads fluctuated with the seasons in a ratio of 2:3, which is about the same as had been observed in Switzerland, 1,600 international units of hormone being the reaction threshold in the winter and 1,000 units in the summer, although the seasonal differences in the hours of daylight are greater in Finland. The threshold of sensitivity is also dependent on the body weight of the adult toad. If the weight of two animals stands in a relation of 1:2, then the amount of hormones required for ovulation are in a ratio of 1 to 3 or 4. For this reason the authors recommend that during the fall and winter smaller toads should be used for the pregnancy test. The quantity of hormone injected determines the number of eggs deposited.

Archiv für klinische Chirurgie, Heidelberg

268:447-540 (No. 5) 1951. **Partial Index**

Measuring the Closing Power of Anal Sphincter (Sphincterometry). F. Zettler.—p. 454.
Prolapse of Nucleus Pulposus with Special Consideration of Late Results. K. Albrecht.—p. 462.
Functional Changes of Respiration and Circulation After Abdominal Operations and Sacral Interventions in Their Importance for Development of Postoperative Respiratory Complications. H. Bruch.—p. 475.
Macronecrosis After Experimental Undercutting of Cerebral Cortex. F. J. Irsigler.—p. 493.
*The Fate of Patients with Arteritis. K. Denecke.—p. 506.
Surgical Treatment of Fractures of the Base of the Skull. W. Dressler. —p. 518.

Fate of Patients with Arteritis.—It has been demonstrated that endarteritis is an inflammatory process. Denecke prefers the term arteritis to endarteritis, because all layers of the arterial wall, rather than only the intima, are involved. He investigated the fate of 96 of a total of 200 patients with arteritis of the extremities in whom the disease had begun at least five years previously. He found that 26% had died of the disease and 30% had undergone amputation, some on both sides. The symptoms subsided in only 5% after a relatively short time and without loss of members. In comparing those who received conservative treatment with those who were subjected to lumbar sympathectomy, no difference could be noted in the course. Apparently, surgical intervention on the sympathetic exerts no decisive influence. The limited effectiveness and the fact that disturbances in sexual function often result from sympathectomy further restrict the indications for sympathectomy in arteritis. Patients who were subjected to amputation early, when only one of the extremities was involved, obtained freedom from symptoms in a high percentage of cases, and none of them died. Thus amputation seems advisable for larger numbers of cases in the early stages, at least until more effective therapy is available. The course of the disorder seems to a large extent to be predestined. In approximately one-half of the patients gangrene does not develop, even over periods of from 20 to 30 years. This observation makes the use of the terms "early" and "late" rather meaningless. It would be better to differentiate between the florid, acute stage and the stage of cicatrization. In approximately 10 to 20% of the patients the disease assumes a generalized form from the beginning, and in these cases it is always fatal. It remains to be seen whether cortisone or corticotropin will produce a fundamental change in the treatment.

Arch. Urug. Med. Cir. y Espec., Montevideo

38:119-228 (March) 1951. **Partial Index**

*Vitamin B₆ (Pyridoxine Hydrochloride) in Diseases of Peripheral Nervous System. G. J. Fernández.—p. 141.
*Reflex Lung: Experimental, Traumatic and Postoperative. Dramatic Reflex of Capillaries of Lung. Experiments Reproducing Clinical Findings. C. Stajano and J. J. Scandroglio.—p. 209.

Vitamin B_6 in Diseases of Peripheral Nervous System.—Vitamin B_6 (pyridoxine hydrochloride) was administered to 17 patients of either sex with diseases of the peripheral nerves including sciatica, facial neuralgia, peripheral facial paralysis, polyradiculoneuritis, acute poliomyelitis, and polyneuritis. The drug was given parenterally in doses of 25 to 50 mg., either daily or every other day for a period of one to three months. The tolerance of the patients to the drug was excellent. The drug when administered either alone or in association with thiamine or any of the drugs commonly used for disease of this type gave good results in all cases, with rapid regression of the disease, control of muscular pain and amyotrophy, and gain of muscular tonicity. In cases of facial paralysis the earlier the administration of pyridoxine hydrochloride the better the results. In diseases of long duration the treatment failed.

Reflex Postoperative Pulmonary Congestion.—According to Stajano and Scandroglio, the pulmonary congestion associated with diseases of the gallbladder, the biliary tree, and the pancreas, as well as that which follows abdominal surgery, is due to a violent bronchopulmonary response to abdominovisc
pathetic reflexes. The response consists in massive vaso
in single or multiple segments of the lung, with co
exudation of plasma and diapedesis of red blood cells
interalveolar septa and into the alveoli, which become
or completely obliterated. In a large group of dogs the
experimentally produced (1) acute distention of the gall
and of the biliary tree, (2) acute artificial edema of the pa
and (3) prolonged and repeated traction on the mesentery
small intestine. A control series of animals had the same
tions as those of the animals in the experiments, but
trauma of the abdominal viscera. All the animals were
45 minutes after the maneuvers. Whereas the lungs of the
trols were macroscopically and microscopically normal,
of the dogs subjected to visceral trauma showed the afo
tioned congestion, edema, hemorrhage, and consolidatio
authors conclude that the results of the experiment supp
theory of the neurovascular origin of transient atelectasis
pulmonary congestion appearing in the first day after abd
surgery.

Beiträge zur Klinik der Tuberkulose, Heidelberg

105:429-518 (No. 5) 1951. **Partial Index**

Pleuropulmonary Fistula. E. Lehmann.—p. 429.
*Cavity in Lower Lobe and Its Treatment. E. Müller and G. E.
—p. 446.
Development of Thoracoplasty. P. G. Schmidt.—p. 463.

Lower Lobe Cavity and Its Treatment.—Of 598 patien
mitted to a tuberculosis hospital during a 30 month peri
(13.2%) had lower lobe cavities and of these, 19 were ma
60 were women. As a rule, the tuberculosis was of the p
tive-exudative type. In 34 of the 79 patients, the cavitie
occurred primarily in the lower lobe, while in 45 there
primary foci in the upper lobe with secondary cavities
lower lobe. Patients with disseminated tuberculosis sho
definite tendency to bilateral cavity formation in the lowe
Results of treatment demonstrated that only in exceptiona
may permanent closure of cavities be obtained with c
therapy alone. This method of treatment proved valua
the control of toxic processes and for inducing regress
recent foci but not for the control of tissue defects caus
maintained by valve mechanisms in the bronchial syste
which require collapse techniques. Closure of cavity w
tained with pneumothorax alone in 23 patients. This r
yields the best results in the shortest time. Phrenicoexeres
or without pneumoperitoneum was the leading method of
ment in an additional 23 patients. Cavernostomy, pneum
and various plastic operations were required in 24 patie
the 34 patients with primary lower lobe cavity, 30 (88
tained closure of cavities with the various collapse tech
In the remaining four patients, who are *still* under trea
results already obtained are promising, so that closure
cavity may be expected in 95% of the patients with i
lower lobe cavities. Lobectomy may therefore be indicat
in exceptional instances of primary lower lobe cavity.
45 patients with secondary lower lobe cavities, 27
obtained closure *with the various collapse* techniq
seven of the remaining 18 *collapse* therapy did not la
enough *to be effective*, while pneumonectomy was
indicated by bilateral involvement in the majority of th
11 patients. Thus pneumonectomy may also be indicate
in exceptional cases of secondary lower lobe cavity. P
nectomy must be considered in cases of tuberculous br
stenosis in which chemotherapy and partial plastic ope
have failed.

British Journal of Dermatology, London

63:283-342 (Aug.-Sept.) 1951

Acid-Base Balance of Skin. D. S. Anderson.—p. 283.
Xanthelasma Palpebrarum: Tumour of *Sebaceous Glands.* E
—p. 296.
Penicillin in Peanut Oil and Beeswax for Treatment of Early
H. N. Bundesen, J. Rodriquez, G. X. Schwemlein and others.-
Aureomycin in Treatment of Kaposi's Varicelliform Eruption
McConachie and T. E. Anderson.—p. 307.
Ward Epidemic from Norwegian Scabies. J. T. *Ingram.*—p. 311.

ish Journal of Physical Medicine, London

14:169-192 (Aug.) 1951

ical Aspects of Ankylosing Spondylitis. W. A. Law.—p. 171.
Joints—Their Pathology and Treatment, with Special Reference to
ıee Joint. L. Gillis.—p. 177.

ish Medical Journal, London

2:311-372 (Aug. 11) 1951

ıanism of "Conversion." W. Sargant.—p. 311.
rimental Psychoses and Other Mental Abnormalities Produced by
ugs. W. Mayer-Gross.—p. 317.
ım Gamma-Resorcylate in Rheumatic Fever. J. Reid, R. D. Watson,
B. Cochran and D. H. Sproull.—p. 321.
tment of Some Bullous Eruptions with Aureomycin and Chloram-
enicol. F. R. Bettley and E. A. Fairburn.—p. 326.
ıbility of Clinical Assessment of "Nutritional State." E. R. Bransby
d W. H. Hammond.—p. 330.
pheral Circulation During General Anaesthesia and Surgery. R. B.
nn and R. Shackman.—p. 333.
ily Doctor and Diabetic Coma. J. C. Pease and A. M. Cooke.
p. 336.

ım **Gamma-Resorcylate in Rheumatic Fever.**—Salicylic has a therapeutic action in rheumatic fever, yet its isomers, netahydroxybenzoic and parahydroxybenzoic acids, are in- e. In an attempt to explain this difference in action, the iochemical properties of salicylic acid and its isomers were pared. Results showed that salicylic acid has the ability to an additional or chelate ring, while this property is not essed by the isomers. The possibility that the therapeutic n of salicylic acid may depend on chelate ring formation examined by studying the antirheumatic action of the mono- ım of 2:6-dyhydroxybenzoic acid, referred to as gamma- cylate, in seven patients with rheumatic fever. Gamma- cylic acid was selected because it can form a double chelate and consequently is a much stronger acid than salicylic Six of the seven patients received amounts varying from m. in 3 days to 10 gm. in 10 days, an average of 0.8 gm. day. The seventh patient, a man weighing 224 lb. (101.6 was given the comparatively large dose of 7 gm. per day our days. The average dose in the six patients was thus t one-tenth of the usual therapeutic dose of salicylate, and mount given to the seventh patient was about equal to that licylate. Oral administration of the drug was followed by f of acute arthritis and by a fall in temperature and pulse Minor joint and muscle pains developed after the third of treatment in five patients. About the same time, emo- l instability, mental confusion, slight fever, and a dry tongue observed in four patients. Puffiness of the face, increased growth on the back, and diminished glucose tolerance sug- d a mild Cushing's syndrome in two other patients. In one ıese, pericarditis developed immediately after arthritis had relieved. All these side-effects disappeared after the drug discontinued. After a temporary rise during the first few of administration of the drug, there was a drop in the ırocyte sedimentation rate, and the main biochemical ges were an immediate increase in nitrogen excretion in urine followed later by a chloride and water diuresis. ıma-resorcylate in much smaller doses thus was observed e as effective as salicylic acid in treatment of rheumatic r, but it may have little or no advantage over salicylic acid, eneficial and undesirable effects seem to be equally poten- d. The evidence, though still not conclusive, favors the lusion that the therapeutic action of salicylic acid and ma-resorcylate is related to their common property of chelate formation.

ibiotic **Treatment of Bullous Eruptions.**—Eight patients, e with pemphigus vulgaris, two with pemphigus vegetans, with pemphigus erythematosus, and two with dermatitis etiformis were treated with aureomycin and chlorampheni- (chloromycetin®). A standard dose of 2 gm. daily (0.25 gm. y three hours) was adopted, with an initial dose of 4 gm. ome cases *it seemed advantageous to give double this stand-* dose. Vitamin supplements were given by mouth during the iod of antibiotic administration. In this small series of cases [illegible] aureomycin appeared to influence the production of bullae in both pemphigus vulgaris and bullous dermatitis herpetiformis. The virus etiology of these two diseases is still unproved, and it may be that the action of aureomycin is not against an infective agent but is a direct effect on the cohesion of the cells of the epidermis. In one of the patients with pemphigus vulgaris, nausea and vomiting were a serious complication, and the authors had to choose between a relapse of pemphigus and this distressing gastric upset. In pemphigus vegetans, in which bullae are much less prominent, chloramphenicol appeared to be effective in melting away the vegetating masses at a surprising speed, while in one of the two patients, aureomycin seemed to be ineffective in the dosage given. Response to treatment was usually obtained within a few days. Other observers believe that these antibiotics need to be continued for at least a month to six weeks, if early relapse is to be avoided. Some of the unsuccessful trials of these drugs that have been reported may have been due to either too small dosage or to too short therapeutic trial. None of the authors' cases were complicated by much secondary infection. Treatment was followed by a suppression of the primary lesions of the disease, an effect clearly not due simply to removal of secondary sepsis. The value of smaller maintenance doses as a means of preventing eventual relapse could not be determined, because of yet insufficient supplies of the two drugs.

2:373-428 (Aug. 18) 1951

*Treatment of Thyrotoxicosis with Radioactive Iodine. G. W. Blomfield, J. C. Jones, A. G. Macgregor and others.—p. 373.
*The "Mess Trick" and the "Fainting Lark." P. Howard, G. L. Leathart, A. C. Dornhorst and E. P. Sharpey-Schafer.—p. 382.
Pulmonary Haemosiderosis. P. Ellman and A. Gee.—p. 384.
Idiopathic Pulmonary Haemosiderosis: Report of Case in Adult. M. Walton and A. A. Williams.—p. 390.
Emphysematous-Bullous Form of Bronchial Cancer. M. R. Castex and E. S. Mazzei.—p. 391.
Anuria in Acute Nephritis. J. D. N. Nabarro and A. G. Spencer. —p. 393.
Clinical Diagnosis of Dissecting Aneurysm of Aorta. O. D. Beresford. —p. 397.

2:429-504 (Aug. 25) 1951

My Academic Life. H. A. Harris.—p. 429.
Consulting Medicine. A. H. Douthwaite.—p. 431.
Forty Years in Public Health. A. Daley.—p. 434.
Surgery. M. Page.—p. 436.
Private Practice. L. W. Batten.—p. 437.
Country Doctor. G. O. Barber.—p. 439.
Colliery Practice. D. G. Williams.—p. 441.
Full-Time Consultant. F. A. Jones.—p. 443.
Professor in the Laboratory. R. J. V. Pulvertaft.—p. 446.
Industrial Medicine. D. Stewart.—p. 448.
Causes of Failure in Examinations. T. R. Henn.—p. 461.
Experiment on Teaching Value of Scientific Film. H. Steinberg and H. E. Lewis.—p. 465.

2:505-558 (Sept. 1) 1951

Action of Sex Hormones on Experimental Diabetes. B. A. Houssay. —p. 505.
Oral Treatment of Polycythaemia Vera with β-Naphthyl-di-2-Chloroethylamine (R48). K. Iversen and E. Meulengracht.—p. 510.
Observations on All Births (23,970) in Birmingham, 1947: IV. "Premature Birth." T. McKeown and J. R. Gibson.—p. 513.
Natural History of Venous Thrombosis. C. Raeburn.—p. 517.
Angina in Analgesic Limb. J. B. Harman.—p. 521.
Fatal Haematemesis, from Oesophageal Varices, in Presence of Large Portal-Caval Anastomosis. T. S. L. Beswick and H. Butler.—p. 522.
Aureomycin: Its Topical Use in Some Skin Diseases: Clinical Study. B. Solomons.—p. 525.
Treatment of Gonorrhoea with Terramycin. R. R. Willcox.—p. 527.

Radioactive Iodine in Thyrotoxicosis.—This paper presents the results of the treatment of 20 patients with thyrotoxicosis with radioactive iodine (I^{131}). The biological effect on the tissues of the radiation from radioactive iodine is similar to that of x-rays; however, because iodine is in general specifically concentrated in the thyroid gland, it is possible to deliver a very high local dose of radiation. The greater part of the therapeutic effect of radioactive iodine is provided by the beta radiation emitted by the isotope, and, as this does not travel further than 2.2 mm. in tissue, there is little effect on the organs beyond the capsule of *the gland. It was possible to induce a satisfactory remission in* every case, but some required several doses of the isotope. Larger doses were needed for toxic nodular goiter than for Graves' disease. A technique is described by which the gland size may be accurately determined and precise dosage of radiation calculated. Induction of malignancy in the gland as a result of internal radiation is improbable, and the immediate advantages of this form of treatment in many cases outweigh the remote risks of malignant change. The simplicity, safety, efficiency, and lack of immediate complications of radioactive iodine therapy make it the treatment of choice for thyrotoxic patients in the older age groups. It is the most satisfactory treatment for all patients in whom thyrotoxicosis has recurred after operation.

The "Mess Trick" and the "Fainting Lark."—In the "mess trick" (played in a mess or at a party) a victim is persuaded to hyperventilate for about a minute and then his chest is suddenly compressed by someone standing behind him. He usually loses consciousness in a few seconds. In the "fainting lark," the boy squats and takes 20 deep breaths, then rises quickly to his feet, closes his nostrils with his fingers (as for inflation of the Eustachian tube by Valsalva's method), and blows hard. He then drops to the ground and "passes out" for a period of about half a minute. In the "mess trick" hyperventilation leads to dilatation of muscle blood vessels and constriction of brain blood vessels. Compression of the chest causes the victim to perform an involuntary Valsalva maneuver, which in the presence of peripheral dilatation is sufficient to reduce effective blood pressure and consequently cerebral blood flow to levels that cause unconsciousness. The mechanism in the fainting lark is essentially the same, except that a voluntary Valsalva replaces the involuntary response to chest compression with the added factor of the fall in blood pressure produced by rising from the squatting posture.

Deutsche medizinische Wochenschrift, Stuttgart

76:1041-1100 (Aug. 31) 1951. **Partial Index**

Surgical Treatment of Mitral Stenosis: Indications. O. Bayer and E. Derra.—p. 1044.
Early Diagnosis and Therapy of Toxoplasmosis in Adults. H. Franke and H. G. Horst.—p. 1049.
Irradiation Therapy of Hyperthyroidism by Means of Radioactive Iodine. W. Horst.—p. 1052.
Clinical Aspects of Adrenocorticotropic Hormone and of Cortisone. L. Weissbecker and W. Ruppel.—p. 1062.
Lipotropic Substances in Therapy of Hepatic Diseases. H. Kalk. —p. 1065.
*Treatment of Herpes Zoster with Ganglion Blocking Agent, Pendiomid (9295 Ciba). L. Norpoth, P. Drügemöller and T. Flossdorf.—p. 1066.
Indications for Therapeutic Use of Novocaine in Internal Medicine. R. Brandner and W. Müller.—p. 1069.
*Results of Treatment with Male Hormones in Progressing and Metastasizing Carcinomas of the Female Genitalia. F. Prediger.—p. 1078.
Diagnosis and Treatment of Bronchial Tuberculosis. W. Faass.—p. 1080.

Ganglion Blocking Agent in Treatment of Herpes Zoster.—The ganglion-blocking preparation "pendiomid" (N, N, N'-N'-3-pentamethyl-N, N'-diethyl-3-aza-pentane-1,5-diammonium dibromide), which has a selective blocking effect on the sympathetic and parasympathetic ganglia of the truncus sympathicus, was used successfully by the authors in eight cases of herpes zoster. Pain was relieved, and there was rapid healing of the cutaneous lesions. It is impossible to give a definite dosage scheme for this drug, but the authors feel that it is best to begin with an intramuscular injection of from 40 to 50 mg. Since the drug reduces blood pressure and involves some danger of collapse, careful supervision of blood pressure and pulse rate are required during treatment. By beginning with comparatively low dosage and by increasing the daily dose by 10 or 20 mg. until a total daily dose of 100 mg. has been reached, the authors were able to prevent complications. The total doses given in the cases here reported varied between 300 mg. and 2,450 mg. The duration of treatment also varied. The authors never had to use circulatory stimulants. Toxicologic studies carried out in the laboratory in which this drug was developed revealed that its toxicity was less than that of tetraethylammonium bromide or chloride. Ganglion-blocking drugs like the one discussed here promise to play an important part in the new therapeutic approach to disorders involving disturbances in the sympathetic nervous system, and in which radical surgical interventions such as resection of the sympathetic have been employed.

Male Sex Hormones in Metastasizing Carcinomas of Fe Genitalia.—Seventy-eight female patients with adva metastasizing malignant tumors of the genitalia were g addition to the customary radium and roentgen treatm plantations of testosterone tablets or injections of susp of testosterone. In 52 of the 62 patients in whom eva was possible, definite subjective improvement was observ there was no change and in 2 further deterioration was e In 24 of the patients improvement could also be demo objectively. The unpleasant reaction to irradiation thera lessened or entirely absent. Tumor growth seemed to be in The responsiveness to x-ray treatment seemed to be und and the period of survival seemed to be longer.

Día Médico, Buenos Aires

23:2297-2336 (Aug. *16*) *1951*. **Partial Index**

Diagnosis and Treatment of Tuberculous Cavitation. J. Tr L. M. Zorraquín.—p. 2309.
*Persistence of Impregnation of Thorium Salts in Liver and Sple Estape, O. Rossenblat and J. Blixen.—p. 2328.

Persistence of Thorium Salts in Liver and Spleen.—Esta collaborators say that although colloidal thorium dioxide (trast®) is now rarely used for roentgen examinations, th ings in one case in which it was used deserve publication, it is the first case in the world literature of visceral im tion with this substance persisting for 14 years. For th examination of the liver, the patient had had two injections cc. each of colloidal thorium dioxide, that is, about half the dose of 75 cc. For many years after the examination the p complained of digestive disorders at long intervals, with r rent pain in the right hypochondrium and the heart. Aft years a roentgenogram of the chest showed radiopaque i of the liver and the spleen, both of which appeared sh and cirrhotic. An opaque transverse chain of lymph nod also visible in the epigastrium. The thorium in the liv the patient showed a radioactivity of 0.03 milliroentge hour when measured with the Geiger-Müller counter. Th activity was located over the right hypochondrium and th epigastric zone and had the quality of gamma rays.

Journal of Bone and Joint Surgery, London

33B:299-492 (Aug.) 1951

*Experience with Use of Refrigerated Homogenous Bone. P. D W —p. 301.
Homografts and Bone Bank. J. J. Herbert.—p. 316.
Studies of Paget's Disease (Osteitis Deformans). M. Lake.—p. 3
*Volkmann's Ischemic Contracture and Its Relationship to Frac Femur. S. A. Thomson and L. J. Mahoney.—p. 336.
Ischemic Necrosis and Regeneration of Tibialis Anterior Musc Rupture of Popliteal Artery. J. S. Horn and S. Sevitt.—p. 34
Treatment of Established Volkmann's Contracture by Tendon T plantation. A. Parkes.—p. 359.
Prolonged Traumatic Arterial Spasm After Supracondylar Frac Humerus: Report of Case. J. C. F. Cregan.—p. 363.
Ischio-Femoral Arthrodesis by Posterior Approach. J. A. Cholm E. J. Nangle.—p. 365.
Observations on Hallux Valgus: Based on Controlled Series. R. H and J. C. R. Clapham.—p. 376.
Unsuitability of Polythene for Movable Weight-Bearing Pros Report of Case of Cup Arthroplasty of Hip. P. H. Newman and Scales.—p. 392.
Two Curve Patterns in Idiopathic Structural Scoliosis. J. I. P. —p. 399.
Alkaptonuric Arthritis: Report of Case. S. Sacks.—p. 407.
Method of Correcting Metatarsus Primus Varus: Preliminar V. H. Ellis.—p. 415.
Internal Fixation of McMurray Osteotomy with Trifin Nail. R —p. 418.
Irregular, Familial Chondro-Osseous Defect: With Suggestions Co ing Nomenclature of Generalised Osseous Dystrophies W. Jackson.—p. 420.
Scleroderma and Melorheostosis: Report of Case. N. M. Tr C. E. L. Allen, G. S. Andrews and F. N. Gillwald.—p. 43
Injuries of Atlanto-Axial Joint. A. R. Hamilton.—p. 434.

Refrigerated Homogenous Bone Grafts.—Results of experi carried out on dogs to compare healing of fresh autog and frozen homogenous bone transplants suggested th autogenous grafts have some advantage over refrigerated h

afts, in that healing takes place more rapidly, but the
ts are the same. Microscopic studies of specimens of
ogenous and refrigerated bone transplants that had
vered at secondary operations from patients in whom
previously been implanted for arthrodesis or other
reported by the author in a previous paper, did not
ificant difference in the rate or method of repair. Re-
homogenous bone transplants were used for 307
s performed on 259 patients up to Jan. 1, 1950. Clini-
in these patients showed the bone to be well tolerated.
of infection in clean cases was 2.6%. Loss of bone
in only two cases. Of the 259 patients, 248 had been
up for six months or longer, making evaluation of
lts possible. Of these 248 patients successful results
ained in 210 (85%). These results were comparable
obtained with autogenous grafts. The healing of can-
ansplants took place more rapidly than with cortical
ansplants that had been preserved for more than one
not heal as well as those that had been preserved for
period, and the failure rate was higher. With long
on there is danger of dehydration, and dried-out speci-
uld not be used. The operation of a bone bank is safe
ical. It offers great advantages to the patient and the
rom the standpoint of availability, abundance, and the
n of the necessity of secondary operations to obtain
en a bone bank is available the number of operations
bone transplants are used will show a sharp increase.

n's Ischemia Complicating Fracture of Femur.—The
e of acute Volkmann's ischemia in the lower extremity
ting fractures of the femur is reported in 13 children.
ght cases reported in detail, there was fracture in the
lf or upper third of the shaft. Treatment of the frac-
isted in application of a Buck's extension and a Thomas
deep boring pain in the central calf area, which was
o control with sedatives and was not influenced very
the release of bandage, was the common feature. A
of numbness soon appeared in the toes and foot and
occasionally upward to the painful calf. This was asso-
ith a stocking type of centripetal anesthesia. All the
lowed a similar pattern. The tender muscle infarcts
l for the calf signs with patchy erythema on the skin
lsations were still present and the leg and foot were
increasing in size. Later on the arterial spasm became
e, resulting in a gradually disappearing pulse and pallor
xtremity. Paralysis was a constant feature and so was
rmly symmetrical return of function in the limbs that
l. The best method of prevention and cure is not only
eness and early recognition with immediate first aid
to release pressure but in addition a widespread re-
vasospasm. Muscle decompression with or without
exploration proved to be of no value. Of the seven
treated with sympathetic block (with a high spinal anes-
x were cured and only one was a therapeutic failure.
on of the calcaneum with a Kirschner wire for trac-
carried out in several cases; it has the advantage of
ng all bandages, suspending the tender calf, and pre-
an equinovarus deformity. Microscopic studies of in-
nuscles were made in several cases. The only essential
e between the histological appearance of muscle that
and that which does not appears to be degeneration
le nuclei. The significance of engorged blood vessels re-
doubtful. Despite the typical gross appearance of an
some regeneration of muscle may occur.

l of Endocrinology, London

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f Destruction of Germinal Epithelium on Numbers of Oocytes.
Mandl and S. Zuckerman.—p. 103.
f Diabetogenic Pituitary Preparations. E. Reid.—p. 120.
ive Analysis of Urinary Phenols and Oestrogens. R. J. Boscott.
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tions on Intravaginal Assay of Natural Oestrogens Using Aqueous
Albumin as Vehicle of Administration. J. D. Biggers.—p. 163.
ism of Vaginal Actions of Oestrogen by Progesterone and Other
ids. J. M. Robson and A. A. Sharaf.—p. 177.
'Hormonal' Iodine in Relation to Thyroid Function and Treat-
with Adrenocorticotrophic Hormone (ACTH). W. T. Salter and
senblum.—p. 180.

Journal Neurol., Neurosurg. & Psychiatry, London

14:153-236 (Aug.) 1951

Surgical Treatment of Bleeding Intracranial Aneurysms. M. A. Falconer.—p. 153.
Sensory Disturbances in Cortical Wounds with Special Reference to Pain. J. Marshall.—p. 187.
Confirmation of Rosenow Antibody-Antigen Skin Reaction in Idiopathic Epilepsy. E. A. Bering Jr.—p. 205.
Local Sign in Autonomic Responses. A. Elithorn, M. F. Piercy and M. A. Crosskey.—p. 209.
Subacute Necrotizing Encephalomyelopathy in an Infant. D. Leigh.—p. 216.
Use of Marchi Staining in Later Stages of Human Tract Degeneration. M. C. Smith.—p. 222.
Neuroticism and Emotional Instability in High-Grade Male Defectives. N. O'Connor.—p. 226.

Klinische Wochenschrift, Heidelberg

29:525-556 (Aug. 15) 1951. Partial Index

Investigations on Life Span of Transfused Erythrocytes in Patients. B. Schlegel and H. Böttner.—p. 525.
Nystagmographic Investigations on Vestibular Damage Following Treatment with Streptomycin. L. Stadler and H. Keser.—p. 531.
Determination of Blood Volume by Means of Radiophosphorus (P^{32}). M. Schwaiger and K. Schmeiser.—p. 536.
*Rapid Bacteriologic Test for Determination of Resistance to Antibiotics. E. Walch.—p. 540.
Behavior of Blood Sugar with Insulin Therapy in Patients with Rheumatic Disorders. G. Stepantschitz and E. Kresbach.—p. 549.

Rapid Tests for Determining Resistance to Antibiotics.—Two years ago Walch demonstrated, by means of the phase-difference microscope, morphological changes that had been produced *in gonococci* exposed to penicillin. These changes were demonstrable in stained urethral smears from two to three hours following injection of 200,000 units of penicillin. The same changes that were observable in the gonorrheal pus of a pencillin-treated patient could also be demonstrated on gonococcic cultures. The method employed was somewhat complicated, but by combining it with the method used by Poetschke and Bommer for the observation of living bacteria under the phase-difference microscope, a relatively simple and rapid test for the determination of the resistance to antibiotics was developed. The bottom of a Petri dish is covered with a thin layer of ascitic agar, and a loopful of bacteria is streaked on evenly. Immediately after this, a coverglass is placed over one part of the dish and it is sealed off on the edges with petrolatum. One drop of the antibiotic solution that is to be tested is then dropped onto one or several places on the Petri dish, and coverglasses are also placed over these areas. Then the dish is placed into the incubator at 37 C for up to three hours. At this time microcolonies of all organisms are seen in the area to which no antibiotic has been applied, whereas in the places treated with antibiotic only those organisms show growth that are resistant to the antibiotic in question. A longer period of incubation proved inadvisable, since it caused effacement of the microcolonies so important in the determination. For further corroboration of results, the coverglasses can be lifted off following examination with the phase-difference microscope and the adhering organisms can be stained with the gram or other stains. Illustrations show the results obtainable with this method. With regard to the determination of the concentration of antibiotics required, this method is not so exact as some others, but it is simple and above all rapid; resistance can be ascertained within three or four hours.

Medical Journal of Australia, Sydney

2:1-32 (July 7) 1951

*Mortality in Australia from Cancers Peculiar to the Female H. O. Lancaster.—p. 1.
Evidence of Adrenal Cortical Function in Pink Disease D. B. Check, B. S. Hetzel and D. C. Hine.—p. 6.
*Diffuse Disseminated Platelet Thrombosis (Thrombotic Thrombocytopenic Purpura), with Report of Two Cases. D. C. Wallace.—p. 9.
Oesophagectomy for Carcinoma: Some Points in Management. F. F. Rundle.—p. 13.
Endemic Leptospirosis in Victoria. N. A. M. Wellington, W. J. Stevenson and A. A. Ferris.—p. 15.

Mortality from Cancers Peculiar to Women.—Lancaster analyzes the mortality of women from cancers of the breast and of the female genitalia on the basis of data in Australian official statistics. He found that these cancers account for an important part of all deaths in women. Cancer of the breast and cancer of the ovaries are both increasing in frequency as a cause of death. At some ages there has been, over the last 40 years, a decline in the mortality from cancer of the uterus. The effect of parity and of conjugal condition on frequency has been noted, it being confirmed that cancer of the ovaries is relatively common among those who have not borne children, cancer of the uterus is commoner among the married, and cancer of the breast is commoner among persons who have never married.

Diffuse Disseminated Platelet Thrombosis.—The name thrombotic thrombopenic purpura or diffuse disseminated platelet thrombosis has been given to a new clinical and pathological entity the principal clinical features of which are a rapid onset with malaise and pyrexia, joint pains, a purpuric rash, hemolytic anemia, and thrombopenia. The disease follows a rapid course, ending with obscure neurological signs followed by death. The essential feature found at autopsy is the presence of platelet thrombi widely disseminated throughout the small arterioles, capillaries, and venules. Two cases of this disease are described, both ending in renal failure, paralysis, and death. Autopsy revealed diffuse disseminated platelet thrombosis in both cases, while one patient also showed histological features resembling polyarteritis nodosa. Although the presence of glomerulitis in this disorder was reported in 1948, it was not previously recognized as a common feature. It was pronounced in both of the cases reported here and was severe enough to produce renal failure in both. Possibly, it is a major feature of the syndrome. Again, as the etiology of this disease is completely unknown, it is perhaps worthy of note that these two cases both began in the same fashion. There was a history of acute infection, of the leg in one case and of the throat in the other case. One of the patients was treated with procaine penicillin, the other with penicillin and a sulfonamide. Although this only suggests an allergic basis of the disease, it is an aspect that should be followed up. It is also suggested that this new disease may be related to the diseases of the diffuse collagen group.

Minerva Ginecologica, Turin

3:305-342 (June) 1951

- Amenorrhea Due to Total or Partial Atresia of Uterine Cavity Following Curettage. M. Nizza and E. Robecchi.—p. 313.
- Late Results of Surgical Intervention on Cervix Uteri in Therapy of Sterility. P. Bailo.—p. 317.
- *Introduction of Blood in Cranial Direction into Carotid Artery. P. Bertoletti.—p. 329.
- Analgesia During Second Part of Labor According to the Method of the Göttingen Clinic. E. Gyarmati.—p. 327.

Blood Transfusion into Carotid Artery.—A woman, 35, was admitted to the hospital with pains in the lower abdomen associated with vomiting and fainting. The diagnosis was probable extrauterine pregnancy with the fetal sac growing out into the peritoneal cavity. Urgent intervention was undertaken with the patient under general anesthesia. Hemorrhage was severe. Fifteen minutes later the pulse rate was 160, systolic pressure had dropped to 100 mm. Hg, and the patient's condition had become worse. Injections of a 25% solution of nikethamide and of a commercial adrenal extract and venous blood transfusion were carried out without success. At the end of the operation, which lasted 45 minutes, the patient was in severe shock. The pulse was imperceptible, the breathing superficial, and the skin and mucous membranes were livid. Forty minutes after the operation when heart action and respirations had almost ceased, a blood transfusion was given into the carotid artery in a cranial direction. After introduction of 150 cc. of blood, the pulse beat increased in rate and rhythm, the mucous membranes regained their color, and the systolic pressure was 90 mm. Hg. After introduction of 1,000 cc. of blood the patient left the operating room with full pulse, systolic pressure of 140 mm. Hg, and in good general condition. Thus, blood transfusion into the carotid artery in a cranial direction was the method of choice in this case. The author reports on three additional cases of severe shock due to hemorrhage in which this intervention was performed. The gratifying results obtained confirm the concept advanced several years ago that in instances of severe shock due to hemorrhage in which recovery seems almost impossible resuscitation should be attempted by first supporting
centers rather than the heart, because they are
and more severely from lack of oxygen.

Philippine Medical Association Journal, Manila

27:333-396 (May) 1951. Partial Index

- Neurological Surgery in America Today: Review. R. H.
- Schistosomiasis and Malaria from the Surgeon's Viewpoint. P.
  —p. 373.

Zeitschr. f. d. ges. exper. Med., Heidelberg

117:439-558 (No. 5) 1951. Partial Index

- Importance of Liver for Acetalphosphatide Content of Serum.
  and M. Taubert.—p. 439.
- Analysis of Sympathicomimetic Circulatory Effects. H.
  guth and H. Schaefer.—p. 445.
- Influence of Nitrogen Mustard on Spermiogenesis of
  H. Goldeck and H. Hagenah.—p. 467.
- Diazo Reaction of Protein-Free Bilirubin Solutions. H.
  H. A. Kühn.—p. 481.
- *Morphological Structural Changes of Anterior Pituitary and
  on an Emotional Basis. J. Schunk and H. V. Cornelius.—p.
- *Heparin to Prevent Coagulation of Pleural Exudates. R.
  W. Lang.—p. 509.
- Cellular Metabolism and Inflammation: I. Metabolic
  Liver After Poisoning with an Allyl Compound. L.
  and E. Rissel.—p. 519.
- Changing the Irritability of the Respiratory Center by
  this Irritability: Method of Determining Irritability. H.

Structural Changes in Anterior Pituitary and Adrenal
by Emotion.—Until very recently psychic trauma
hardly any consideration in the study of the genesis
disease. Selye, however, accepted psychic stimuli as
factors. On the basis of Selye's concepts on the
tion syndrome, Schunk and Cornelius subjected cats
tional stress. One group was exposed daily for two
contact with dogs, which had been trained to annoy
injure the cats. Asthenia, tremors, twitching, and,
end of the three-month period of stress, even atactic
began to develop in the cats. All these signs were
control group of animals not exposed to stress.
trocardiographic studies revealed ventricular
interference dissociation and in one animal signs of
insufficiency. The pituitary and adrenal glands of
of cats were studied histologically. In
controls, all experimental animals showed severe
changes in the pituitary; three of four animals
tion a significant increase in the basophilic cells at
of the chief cells and of the eosinophils, and the
showed atrophy of the lipoid substances, whereas in
animal it was hyperplastic. These findings were
phase of exhaustion or resistance within the scope of
adaptation syndrome.

Heparin to Prevent Coagulation of Pleural
and Long point out that injection of
larly of heparin, into pleural exudates has been studied
ous investigators. Their own studies were designed
to estimate the clinical value of anticoagulants for
as to analyze the conditions that influence coagulation
exudates. Pleural exudates were obtained by the usual
method from two patients with tuberculous pleurisy,
patient with suppurating postpneumonic exudate,
tients with cardiac insufficiency who had a stasis
from one with exudative pleurisy, and from one with
tumor. Pleural exudates and transudates did not
form reaction when heparin or citrate solution were
vitro. There are pleural exudates that coagulate in
the presence of a significant quantity of
tance. It was shown by prothrombin and thrombin
that heparin and a substance known as thrombocid
of reducing the coagulating level of various
pleural exudates seem to lack substances that are
give heparin its full effect in blood or blood
exudates contain titers of thrombokinase or
the in vitro test may eliminate the effect of heparin.
heparin effect becomes evident in such pleural fluids
mal plasma is added, it is probable that the heparin
is inadequate in such exudates. Treatment of pleural
with a combination of anticoagulants may bring

BOOK REVIEWS

harmacologic Principles of Medical Practice: A Textbook on logy and Therapeutics for Medical Students, Physicians and the of the Professions Allied to Medicine. By John C. Krantz, Jr., of Pharmacology, School of Medicine, University of Maryland, and C. Jelleff Carr, Associate Professor of Pharmacology, Medicine, University of Maryland. Second edition. Cloth. $10. with illustrations. Williams & Wilkins Company, Mount Royal ford Aves., Baltimore 2, 1951.

edition is a distinct improvement over the first edition. provement, according to the authors, was made possible many friendly critical and constructive suggestions sent ers of pharmacology who have used the first edition as Typographical errors have been corrected, and most have been enlarged. For example, the chapter on gen-sthesia now includes Guedel's chart of the stages of ia, which was not in the first edition. Two new chapters otherapy have been added. Drugs are classified accord-rgan systems, and each pharmacological chapter is pre-y a short orientation chapter that reviews the anatomy siology of the organ to be discussed. This practice makes book ideal for nurses and pharmacy students. As a text-r medical students this edition is concise, modern, and It will fill a distinct need in pharmacology.

logical Dynamics of Health Education. Proceedings of Eastern ealth Education Conference, April 13-14, 1950. [Under auspices York Academy of Medicine.] Cloth. $2.50. Pp. 134. Columbia y Press, 2960 Broadway, New York 27; Oxford University Press, ouse, Warwick Sq., London, E.C.4, 1951.

een specialists participated in this searching study of ducation motivation, each from a different approach, and lating review of the subject has resulted. The conclusion lago Galdston, secretary of the committee by which the was developed, that there is no treatment comparable to health education appears justified. Among the sub-cussed are motivation in the adolescent and adult through and older-age groups, mass mediums, union activities, ic implications, nutrition education, and venereal dis-cation, and the contribution of hospital services to health n. The various contributors are careful to keep within its of their assignments, and this makes for clear-cut tion and understanding. The New York Academy of e and its steering committee of the Annual Eastern States Education Conference has performed another creditable in developing this program and presenting it in this ent form.

Vector Electrocardiography: *Clinical Electrocardiographic Inter-* By Robert P. Grant, M.D., and E. Harvey Estes, Jr., M.D. 4.50. Pp. 149, with 41 illustrations. Blakiston Company (division leday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1951.

e Grant and Estes were on the teaching staff at Emory sity Medical School they taught electrocardiography to students and physicians. In 1949 their notes and dia-used in teaching spatial vector electrocardiography were ed privately by the medical school. The present volume, re, is really a second edition of the book published in much revised and expanded. The authors have tried to a complicated subject in a form that is easily under-Nevertheless, this book is only for those who already good working knowledge of clinical electrocardiography. atial vectors in this work are derived from the standard, ar limb, and unipolar chest leads of the ordinary electro-gram. The methods by which this is done are illustrated ny well-chosen diagrams. The clinical applications of the vector method of electrocardiography are fully discussed as the possible applications to research. This includes the use of this technique in determining the electrical position of the heart, the various effects produced by localized areas of ischemia and infarction, and the ventricular gradient. The spatial vectors of the T wave and of the QRS complex both in the normal state and in disease are discussed in detail.

The authors have not discussed any of the several direct methods of vector electrocardiography and have wisely refrained from discussing some of the more controversial aspects of this subject. The specialist or teacher in cardiovascular diseases should have this excellent monograph in his library as a reference book.

Diagnostik der Kinderkrankheiten mit besonderer Berücksichtigung des Säuglings: *Eine Wegleitung für praktische Ärzte und Studierende.* Von Professor Dr. E. Feer. Sixth edition. Cloth. $9. Pp. 461, with 285 illustrations. Springer-Verlag, Mölkerbastei 5, Wien I, 1951.

This edition has been enlarged and improved, and much new material has been added. The author has attempted to make the work all-inclusive; hence, the book appears in a concise yet an encyclopedic form. It was not written for the skilled specialist or for the student who intends to specialize in pediatrics; it is meant, however, mainly for the general practitioner, who in his daily work feels the necessity of filling those inevitable gaps that must appear in such a rapidly growing and complex subject as pediatrics. With these thoughts in mind the author has arranged the subject matter according to symptomatology and clinical manifestations; in this way a sort of condensed reference book on differential diagnostic problems has resulted. This book has been looked on as a standard among German-speaking physicians for many decades. The new edition brings it up to date by the addition of many diseases that have now become of differential diagnostic interest and importance. Many of the older illustrations have been replaced by newer and better material. The book can be recommended for anyone interested in pediatrics and who has a reading knowledge of German.

The Cure of Rheumatoid Arthritis and Related Conditions (Osteoarthritis, Bursitis, Frozen Shoulder, etc.) by Physical Medicine: A Result of Thirty Years' Study (Original Investigations). By Joseph Echtman, M.D. Cloth. $6. Pp. 251, with 17 illustrations. Herald Square Press, Inc., 233 Spring St., New York 13, 1951.

Although this book purports to be a complete text on the cure of rheumatoid arthritis and related conditions (e. g., osteoarthritis, bursitis, and frozen shoulder), well-established methods of treatment for such conditions are ignored or brushed aside. Echtman begins with the contention expressed in the legend under Figure 1 that only three pieces of apparatus (he illustrates an ancient ultraviolet lamp, an obsolescent long wave diathermy machine, and a very old galvanic sinusoidal apparatus) "are necessary for the treatment of all the conditions discussed in this volume." These conditions include rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, Still's disease, osteoarthritis, bursitis, and traumatic arthritis. The statement that "ionization and interrupted surging sinusoidalization" present "a definite cure for fibrous ankylosis (flexion contractions) of joints" is typical of the many unsound and erroneous conclusions.

Another example of the book's unsound approach to the total problem of the care of the patient with rheumatoid arthritis is the suggestion that "raw (unpasteurized) cream, unheated molasses and raw sugar cane juice" be included in the diet. Again on pages 55 and 56 the author tells of a personal experience in which he accidentally passed "a strong electric current of 200 volts and 50 ma." through his own body from hand to hand. Because the current seemed "to spread upward to the neck and towards the head (brain) but not downwards toward the heart," he concluded that the current travels "via the nervous system and not via the vascular system." This statement overlooks the simple laws of physics with regard to the passage of

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views here published have been prepared by competent authorities not represent the opinions of any official bodies unless specifically

RADIOACTIVE IODINE IN ANGINA PECTORIS

To THE EDITOR:—*In the* American Weekly *of June 3, 1951, an article states that patients with angina pectoris have been restored to normal active life through the use of radioactive iodine. Is there any foundation for this report?*

M.D., California.

ANSWER.—The rationale for the treatment of angina pectoris with radioactive iodine (I^{131}) is as follows. I^{131} produces hypothyroidism. The lowered basal metabolic rate in this condition diminishes the oxygen requirements of the tissues, including the myocardium. Thus the diminished blood supply to the heart present in angina pectoris would allegedly be adequate. Blumgart, Freedberg, and associates (*J. Clin. Endocrinol.* **10:**1270, 1950) produced hypothyroidism by this means in several patients with angina pectoris who showed evidence of incapacity, despite marked restriction of activity and despite standard therapy for angina pectoris. The results with I^{131} were worth while in about two-thirds of these patients, many of whom were able to be much more active than previously, with only occasional or no anginal attacks.

Improvement may not be noted for as long as six months, for it may take that long for hypothyroidism to occur. Once it is induced, the patients can be maintained on small doses of desiccated thyroid. The amount required varies, the ideal dose being that amount that will relieve the symptoms of myxedema without raising the oxygen requirements of the tissues to such a level that angina pectoris recurs. Most of the therapeutic failures have resulted from inability to achieve this balance. Many patients experience definite relief from angina when they exhibit myxedema but are markedly distressed by this latter state. Relief from myxedema with desiccated thyroid in these cases is accompanied by a recurrence of anginal attacks. These are serious therapeutic failures, for the original anginal syndrome as well as the induced hypothyroidism is still present.

The induction of hypothyroidism by I^{131} should be undertaken only by experts who have the experience and equipment for proper handling of the procedure. Under these conditions, no radiation sickness or toxic effects occur, except mild transitory thyroiditis in approximately half the cases. Final evaluation of this therapy must await prolonged study.

PHENOBARBITAL WITHDRAWAL SYMPTOMS

To THE EDITOR:—*Please tell me something about withdrawal symptoms occurring after a patient has been taking phenobarbital for some time. How are these treated?*

Garra L. Lester, M.D., Chautauqua, N. Y.

ANSWER.—If the patient has been ingesting as much as 0.8 gm. or more of phenobarbital daily, abrupt withdrawal of medication may be followed by the development of insomnia, weakness, tremor, grand mal convulsions, and delirium. If the patient has been ingesting 0.3 to 0.8 gm. of phenobarbital daily, probably only insomnia, weakness, and tremor will be observed. If the patient is an epileptic, withdrawal of even small amounts of phenobarbital may precipitate status epilepticus. These withdrawal symptoms can be prevented or minimized by slowly withdrawing the phenobarbital. Preferably, treatment should be carried out in an institution. If the patient has been ingesting 0.8 gm. or more daily, one should determine the least amount of phenobarbital that will continuously maintain mild intoxication; usually 0.8 to 1.2 gm. will suffice. After this dose has been determined, the phenobarbital should be reduced at the rate of 0.1 gm. daily. When the dose has been reduced to one-half of the amount that maintained mild intoxication continuously, withdrawal should be stopped for a day or two and then begun again. It is best to administer the phenobarbital in three or four doses daily. If excessive nervousness, insomnia, and weakness appear during withdrawal, reduction of phenobarbital should be stopped for several days, until these symptoms disappear. Electroencephalographic control is desirable, and, if spikes or spike and dome complexes appear during withdrawal, an extra dose of phenobarbital should be given and reduction stopped for a day or so. Usually, withdrawal can be accomplished within 14 days if the patient's intake has been 0.8 gm. or more daily. If the daily intake has been less, withdrawal can be accomplished more rapidly.

SPEECH DEFECT FOLLOWING CEREBRAL ACCID

To THE EDITOR:—*My father, who is 64, has essential hy*
sion (240/180). He had a stroke. I have treated him
the known methods, and, although the blood pressure
160/110, the neurological and cerebral phenomena ha
been overcome. His only annoyance is a type of local
which prevents his pronouncing clearly words contain
letters "p" and "r." He is also diabetic; I have tried to
come this condition without success. I am now using
stigmine bromide but without effect. Is there anything
that could help my father recover full power of speech

Dixon Ramirez, M.D., Cabo Rojo., Puerto R

ANSWER.—It would seem likely that the improvement i
neurological deficit here is all that could be expected. Th
no form of medical treatment available at present that is
to bring about further improvement in a case of cerebral th
bosis with a partial aphasia such as is described here. Natu
with the passage of time and reeducation of the speech ce
further improvement in the speech defect may occur.

CANCER OF BREAST

To THE EDITOR:—*A woman of 44, who is still menstru*
regularly, had carcinoma simplex of the right breast
metastases in a few axillary lymph nodes. Radical mastec
was performed, and the patient received 20 x-ray trea
of the axillary region. What could be done to improv
prognosis? Would surgical or x-ray castration be indi
or would you suggest treatment with testosterone? What
be the dose and duration of treatment if testosterone s
be used? *Paul Immerwahr, M.D., Downers Grove,*

ANSWER.—If the patient shows no signs of persistent or
static disease at this time, further treatment is not indi
Castration by surgical removal or x-ray has not prevent
currence. It is of value in some instances when recurre
disease has taken place. In spite of an occasional opinion
contrary, the same is true of hormonal therapy. It sho
used only when there is definite evidence of local or met
recurrence of disease.

CRACKS AT CORNERS OF MOUTH

To THE EDITOR:—*Can well-fitting dentures cause cracks*
corners of the mouth? My patient has had this irritating
tion for eight years; it started shortly after he was fitt
upper dentures. He tells me that last year he spent $2
vitamins alone and "has been shot with everything bu
pistol." I would appreciate information on this matter.

Laurier E. Hackett, M.D., Camilla,

ANSWER.—Well-fitting dentures will not produce cra
the corners of the mouth. An inadequate diet will. The
tion is not how many vitamins the patient has taken but,
probably, how much food. Darby has reported the cure o
fully controlled cases of superficial glossitis with iron. H
patient's lack of natural teeth prevented his eating me
other important foods? It is suggested that your patient be
iron and a liberal diet, including an abundance of fruits,
tables, and meat. The dentures are not directly at fault.

NOCTURIA

To THE EDITOR:—*In* THE JOURNAL, *Oct. 13, 1951, page*
doctor of 67 years asks why he has to urinate five times
whereas he has normal daytime urination. Besides the
stated in the answer, another cause may be present
case, namely, an increase in blood pressure which n
caused by increased affectivity. A person gets into bed a
feeling sleepy, he begins to think and think, and soon, in
quence, a stimulating emotion develops and is increased
disgust at his inability to sleep, the affectivity or emotion
lates the heart, the heart pumps more blood and rais
blood pressure throughout the body, and the kidneys
more urine. This chain of action is especially comm
neurasthenics. In nocturia of this kind, of course, one
treat the insomnia.

George E. Barnes, M. D.
125 Mary St., Herkimer, N

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WORKING TOGETHER IN '52

Louis H. Bauer, M.D., Hempstead, N. Y.
President-Elect of the American Medical Association

ust what do we mean by "working together in '52"?
my mind this means not only the medical profession
king together but includes other organizations whose
s are similar to ours. First of all, however, we
st unify the members of the medical profession. We
'e too many members beset with indifference. Our
nty societies have in many areas become organiza-
ns of little influence owing to poor attendance.
ese county societies must be revitalized. Physicians
st be brought to the realization that medical progress
l cease unless doctors learn to work together. Where-
r in the world strong medical organizations do not
st, there will be found the countries with low stand-
s of medical care and medical education. Wherever
medical profession did not stand together as a unit,
se organizations have been taken over by politicians.

ne often hears the complaint that medical societies
reactionary and run by small cliques. If they are,
ose fault is it? Usually it is the fault of the complainers
o have stood aside and contributed only backbiting to
solution of medical problems. If the members of a
iety would take an interest in its welfare, then the
iety would become a forceful agent in the community.
you do not like what your local society does, it is
bably because you have made no fight to change its
icies. A society is the product of its members. The ma-
ity must rule, and the minority must accede to the will
the majority until it can persuade the majority to
nge its policies. Nothing is accomplished by decrying
efforts of those who work, unless those who criticize
willing to work too, and show how things can be
tered.

What holds for a local society also holds for a state or
tional body. Since the A. M. A. has adopted dues as
equisite for membership it has lost members. Why has
s been the case? There are four reasons why a physician does not pay his A. M. A. dues: 1. He is exempt from dues for a variety of reasons. 2. He is socialist in his thinking and, therefore, out of sympathy with the A. M. A.'s campaign against socialized medicine. 3. He is totally uninformed about the A. M. A. and what it stands for. 4. He is not grateful for all that has been done for him.

It is up to those of us who pay our dues to educate the uninformed and convert the ungrateful. The mere facts that a physician is able to practice medicine in high-grade hospitals with the protection of certified therapeutic agents and apparatus, that he has had a high-grade medical education, and that he is practicing in a free state, untrammeled by political regimentation, he owes to the A. M. A.

The American Medical Association must have within it proponents of varying opinions. That is healthy. It is never going to pursue any policy that is not in accord with the opinions of the majority of its members, if it knows what those opinions are. Urge your colleagues to take an active part in society work and to express their opinions. The A. M. A. has to be governed by majority desires. You may not agree with the action or the policy of the federal government, but you do not give up your citizenship because you do not agree. You fight or you ought to fight for a change in those activities or policies.

One trouble today in the United States is the lack of civic responsibility of many of our citizens. It is the same indifference seen in our medical societies carried on into civic life. Our duties as physicians are great, but our duties as citizens are even greater.

This country has been built on a spirit of competition and free enterprise. During recent years there has been a studied attempt to diminish the importance of self-reliance or the desire to improve one's lot and substitute instead a dependence on government. When one loses

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Read before the Fourth Annual Medical Public Relations Conference, American Medical Association, Los Angeles, December 2, 1951.

the desire to help himself and provide for his family, he has lost much of his independence. There has been an attempt to set class against class and to convince the public that it should rely more and more on government and less and less on personal initiative. Instead of depending on one's own resources for many of the essentials of life, the people are being taught to turn to government. It does not seem to be realized that nothing in this world is free. We either pay for it in fees, wages, or premiums, or we pay for it in taxes. No government has any money except what it takes out of your pocket and mine.

Our forefathers set up a balanced government, evenly divided among the legislative, judicial, and executive branches. The executive branch recently has taken on more and more authority and shoved the other two further into the background. We are ruled today largely by administrative law—law written by bureaucrats who are appointed and not elected. We have become a bureaucracy, in fact.

There are those in our government who are trying to have us follow in the footsteps of certain European countries, countries which are socialist in their thinking and socialist in action, countries so decadent in their economy that they are calling upon a capitalist country to support their socialistic experiments. Corruption has entered into government. Elected officials have been dealing with gangsters and gamblers. Respect for government has diminished.

There is too little training in this day and age in American history and American institutions. Many students reach college and even graduate from it knowing little about the history of this country and its founding, but much about socialism.

Socialism has never worked anywhere, and yet we are steadily becoming less democratic and more socialistic in our government. Is it not time we took stock of ourselves? When this country was founded, the principles on which it was founded were new. No one outside of this country thought they would work, but they did work and this country became the greatest in the world, exemplifying the doctrine of freedom, the doctrine of free enterprise, the doctrine of every man, no matter what his origin, having the opportunity to follow any walk of life and to better himself. A premium was placed on initiative and individual efficiency. Now we have in office in many places those who would revert either to authoritarian government or to the type of government that is paternalistic, where the citizen swaps his freedom for government subsidies, the type of government that becomes the master of men and not their servant. We have a minority government, because, in the last national election, only 47 per cent of those entitled to vote actually voted.

If we are to work together in '52 we must arouse not only the members of our profession to their civic responsibilities, but, through our relations with other organizations and with the public, we must arouse all persons to a sense of this civic responsibility and reawaken the spirit of Americanism, the spirit of competition, and the of free enterprise. We must see to it that regard party label we elect only those officials who believe i American way of life, who believe in a democracy a republic, who are honest, and who will not tolera ruption in public office.

This country is not at the cross-roads; it has al passed the cross-roads and is fast moving down th marked "Socialism." It is up to all true American believe in our institutions and are proud of our hist turn the country back to the cross-roads and once start down the only road that leads to freedom. Th ical profession cannot do this alone, but it can h can lead the way, and it can enlist the support of organizations and individuals imbued with a sp patriotism who do not want to see the United St the way of the Roman Empire, or the way of "th that was Greece"; who want to return to a governm the people, by the people, and for the people, and not want to continue a government by bureaucra aim to enslave the people and make them its serv

This is what "working together in '52" means t is not an easy task. It cannot be left for a few pe do. It requires the back-breaking work not only physician but of every patriotic citizen. This i partisan fight. It is a fight for Americanism—a preserve what is left of our institutions and to re far as possible what has been destroyed of our in liberty. It is your fight—not as a physician but izen. We have stopped socialized medicine for being only, and that campaign will have been in less, now, as citizens we stop the socialization of tire economy and, in fact, of our entire country.

The tide can be turned in *1952*, but we must gether to do it, and we cannot wait even until Ja start. The time to work together is *now*.

Surgical Treatment of Varicose Veins.—As of May there is no cure for varicose veins. There is the poss mechanically improving the circulation to the extremiti judicious use of procedures fitted to the pathologic p the return flow system individually encountered in the ing number of humans so afflicted. There is also the p that by choice of the wrong procedure, or only half-w ment, the condition may be unaltered, yes, even mad The doctor who undertakes the surgical attempt to the varicose patient should be aware that he is tedious, long, patience-tasking and often poorly ap struggle, that is only going to be successful inasmuch been prepared for and inasmuch as it is carried throu completion. There can be no compromise, and a patient for the program to follow the initiation of care is infinitely better readied for the rigorous job ahead. reason it is imperative that the first conference with the who is assuming the task be detailed and specific in the limitations that are inherent in the therapy offe doctor who glibly states that he will cure the veins ignorant of what is possible, or else is worried that th will not be convinced of the efficacy of the treatmen up to this time, is available.—Laurence D. Hilger, M.I cal Treatment of Varicose Veins, *Minnesota Medicine,* ber, 1951.

CLINICAL MANIFESTATIONS OF ARTERIOSCLEROSIS

Howard B. Burchell, M.D., Edgar V. Allen, M.D.
and
Frederick P. Moersch, M.D., Rochester, Minn.

ically the problem of arteriosclerosis is related to occlusion of the small or medium-sized arteries. ain organs or body regions where arteriosclerotic wreaks havoc are the brain, the heart, and the limbs. There is a basic similarity in the nature of or chronic arterial occlusion, but the dissimilarity ptoms is related to the varying minimal oxygen ds of the tissue involved and the duration for oxygen deprivation can be endured without ir- ble harm. One could construct a table showing gree of vulnerability of various types of tissue to f oxygen. On such a list nervous tissue would be top, with renal and myocardial tissues considerably the scale, and skin and voluntary muscle near the n. The results of arterial insufficiency on the integ- f the total person obviously will depend on the tance of, and possibility of functional replacement e tissue jeopardized or destroyed.

addition to the occlusive lesions related to the sclerotic process per se, there are other less fre- but still important arteriosclerotic lesions. These 1) aneurysms, particularly of the abdominal aorta, eal, or femoral arteries; (2) the pressure effects teriosclerotic vessels themselves as illustrated by ic lesions of the cranial nerves in the base of the and (3) arterial embolism from a more central of thrombosis, as from within the heart affected by tion. Isolated calcific aortic stenosis in the aged is considered an arteriosclerotic lesion and is by no an insignificant, causative factor in heart failure dden death.

term "generalized arteriosclerosis," while often is misleading and only superficially acceptable. The e may be widely disseminated throughout the l system, but it retains a certain irregular distribu- oth along the long axis of the artery and about its nference. From the degree of atherosclerosis in art of the body, as for instance the heart, one can- redict the degree of similar lesions in other parts body, as in the brain. The usual benign nature of önckeberg type of arteriosclerosis, which is evi- d by thick nodular peripheral arteries, is well n. We desire also to join in the crusade against the ing of a close relationship between age and arterio- sis, which is either accepted or implied in past al-school curriculums. For purposes of emphasis, make the provocative statement that while aging entless, atherosclerosis is not necessarily a pro- ive nor irreversible process.

BRAIN AND SPINAL CORD

s most difficult to assess the role of cerebral arterial se in the causation of personality disintegrations or lutions seen in elderly persons. Parenthetically, one refrain from labeling a person as arteriosclerotic if he is older and holds a different "fixed" viewpoint from oneself. The possibility of being able to quantitate brain damage from studies of oxygen uptake by new technics is likely but will not be available to us as physicians. The question occasionally arises as to whether a cerebrovascular accident might be evidence of a person's unsound mind in making a will—perhaps better said, in making a new will, maybe not in favor of the relatives. We believe that there would be agreement that a hemiplegic condition is a manifestation of focal damage only and as evidence indicating intellectual deterioration would be most circumstantial and unreliable. The mental changes that are usually attributed to arteriosclerosis include impaired memory, poorly sustained attention, irritability, emotional instability, and poor cooperation.

Apart from the clinical conditions associated with occlusion of the main cerebral arteries, surprisingly few major afflictions or established syndromes result from arteriosclerosis of the central nervous system. One must accept the fact that many symptoms resulting from cerebral arteriosclerosis are not clinically recognizable as such. To the trained neurologist, arteriosclerosis, as compared with neoplasm, is a most disappointing disease in that it only rarely produces the discrete lesions that are of such delight as exercises in pinpoint localization. The usual symptoms of occlusive vascular episodes of the brain are often grouped in the all-inclusive category of strokes. Hemiplegia, hemianopsia, and aphasia are common manifestations. While hemiplegic patients tend to be put in a single group, there is no exact reproducibility of the syndrome, and a careful, even though it may be relatively simple, neurological examination is not only indicated but will be rewarding. Each physician in his lifetime probably sees a patient with thrombosis of the posterior inferior cerebellar artery several times, and if he charts his findings, not at first recognizing the syndrome, recourse to a book on either neuroanatomy or neurology will give him the diagnosis. "Thalamic" pain, pseudobulbar palsy, tremors, extrapyramidal syndromes, and major convulsive disorders are known to follow cerebral vascular insults. It is a strange but well-known fact that at times necropsy will reveal extensive atherosclerosis of cerebral vessels, when a review of the clinical history fails to reveal any neurological disturbance. Similar findings are often made in other parts of the body also, for example, in the heart or extremities. Most neurologists admit an inability to assess senescent morbidity accurately in terms of predicted severity of the cerebral arteriosclerosis.[1]

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Read in the Symposium on Arteriosclerosis and Hypertension before the Joint Meeting of the Sections on Experimental Medicine and Therapeutics and Internal Medicine at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 15, 1951.

[1] Woltman, H. W.: The Effects of Arteriosclerosis on the Central Nervous System, Chicago M. Soc. Bull. 52: 363-368 (Nov. 12) 1949.

Ophthalmological examinations are of greater reliability in the interpretation of the severity of the hypertensive state than they are as a guide to the degree or predominant location of disseminated atherosclerosis. In particular, examinations of retinas have not been of any consistent value in determining the presence or absence of significant atherosclerosis in other areas. This experience bears out the opinion which Wagener of our clinic expressed years ago. Recent careful histopathological studies by Alpers, Forster, and Herbut[2] have shown that there is no close relationship between retinal atherosclerosis and sclerosis of the small arteries supplying the brain.

The vascular supply of the spinal cord is more than adequate, and major vascular syndromes are infrequent. Rarely thrombosis may occur in the anterior spinal artery and produce a characteristic diplegia with dissociated sensory changes. Occasionally other bizarre or indefinite neurological symptoms, particularly paresthesia, may be attributed to arteriosclerotic changes in the cord. The term "intermittent claudication" of the spinal cord has appeared in the literature, but we doubt that such an entity exists.

HEART

The heart is the organ that has attracted the most extensive studies concerning the nature of the arterial insufficiency resulting from disease of its nutrient arteries. The primary and traditional symptom of such arterial insufficiency is angina pectoris. Severe arterial insufficiency frequently leads to acute myocardial infarctions, the typical clinical picture of which is all too familiar. Electrocardiography has been accused of having been a detriment to progress in research in arteriosclerosis, draining the efforts of investigators into relatively sterile researches, and the technic has been found wanting as an indicator of early coronary disease and often of advanced coronary disease. Despite these justified laments, electrocardiographic studies have done much to focus attention on coronary disease and to allow careful serial clinical studies of patients.

There are still many gaps in our knowledge of the factors determining the relative benignity of coronary disease. Some persons live for many years with no pain or real disability; others have mild or severe, typical or atypical effort pain; others have repeated myocardial infarctions, and still others have cardiac enlargement and failure. The antemortem course cannot be reconstructed from a study of the postmortem specimen. In the uncomplicated case of angina pectoris, it would be a brash physician who would give any exact prognosis. The life
expectancy of a group of patients having angina
can be stated generally by saying that the yearly
rate is about 10%.[3]

Coronary sclerosis increases with age, but
as group studies indicate, the actual amount of
sclerosis is as extensive in a group of men in
decade as in a group of men in the seventh
decades.[4] *Put another way, if one meets on a*
men, one 75 and the other 55, there would be
chance as to which one had the severer atheros
narrowing of the coronary vessels.

Besides the syndromes of angina pectoris and
myocardial infarction, a border state between the
ditions must be recognized. In this border state
the condition of prolonged myocardial ischemia,
eventually may progress either toward recovery or
infarction. It is generally recognized that abo
thirds of acute myocardial infarctions are relate
acute occlusion of the coronary artery, and in
maining third the infarction occurs without any
diately preceding acute occlusion but can be sai
related to an acute coronary insufficiency. My
infarctions related to coronary narrowing but n
actual occlusion are characterized by their sube
dial distribution, absence of a pericardial reactio
of cardiac rupture or development of aneurysm, a
tendency to be more frequent in large hypert
hearts.[5] The incidence of mural thrombosis is si
that of infarcts resulting from acute occlusion. T
gathered and analyzed by Yater and his associ
"coronary deaths" in men less than 40 show th
quarters of these men died without myocardia
tion, and nearly half did not have recent th
occlusion.

In the heart acute arterial occlusion may occ
out producing any infarction; the explanation is
previously stenosed vessel has stimulated the
ment of collateral circulation. It is well recogn
that acute myocardial infarction may occur with
and in this group of patients diabetics with som
of neuropathy have a large representation. In ad
the clear-cut syndromes of coronary sclerosis, th
also may contribute to the heart failure associa
aortic valvular disease or essential hypertension
both.

Syncopal reactions are relatively common in
who have arteriosclerosis. Adjustments to the
the erect position are often less rapid, so that
and giddiness may be complained of. It is to be
bered also that hypersensitive carotid sinus
are often encountered in patients with arterio
changes in their carotid vessels. Syncope also
symptom of calcific aortic stenosis, and it may
dence or a manifestation of intermittent hear
called "Adams-Stokes attacks."

LOWER EXTREMITIES

The peripheral arterial circulation can be
more directly than the circulation of other par
body, for an adequate clinical examination wi
the situation with accuracy. The story of int

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2. Alpers, B. J.; Forster, F. M., and Herbut, P. A.: Retinal, Cerebral and Systemic Arteriosclerosis: A Histopathologic Study, Arch. Neurol. & Psychiat. **60**: 440-456 (Nov.) 1948.

3. Parker, R. L.; Dry, T. J.; Willius, F. A., and Gage, R. P.: Life Expectancy in Angina Pectoris, J. A. M. A. **131**: 95-100 (May 11) 1946.

4. White, N. K.; Edwards, J. E., and Dry, T. J.: The Relationship of the Degree of Coronary Atherosclerosis With Age, in Men, Circulation **1**: 645-654 (April) 1950.

5. Miller, R. D.: Burchell, H. B., and Edwards, J. E.: Myocardial Infarction With and Without Acute Coronary Occlusion: A Pathologic Study, Arch. Int. Med., to be published.

6. Yater, W. M.; Traum, A. H.; Brown, W. G.; Fitzgerald, R. P.; Geisler, M. A., and Wilcox, B. B.: Coronary Artery Disease in Men 18 to 39 Years of Age: A Report of 866 Cases, 450 with Necropsy Examinations, Am. Heart J. **36**: 334-372 (Sept.); 481-526 (Oct.); 683-722 (Nov.) 1948.

dication is usually recognized without difficulty, ugh if the pain be in the buttocks or insteps, the gnosis seems to be missed oftener. To draw a rela- ship to coronary atherosclerosis, the term "angina ris" is not amiss. One can observe evidence of loss of wth of hair and nails, inadequate filling of the capil- es and veins of the feet, or actual gangrene. Early of vitality in tissues of the feet, particularly at pres- points, may readily be overlooked if not searched In clinical practice it is rare that one needs the infor- ion to be gained from plethysmography, oscillometry, riography, measurements of circulation time, or pre- skin temperatures, although these may be important hysiological investigations. The apparent simple ex- nation of the arterial pulsations is an important test dequacy of the peripheral arterial circulation. It can- be done in a desultory manner, and the first step in investigation is for the examining physician himself be comfortable. It must be remembered that an ab- ce may mean no more than interference with trans- sion of the pulse wave. The degree of abnormal pallor en the feet are elevated and the speed with which the ns fill when the feet are moved to the dependent posi- n are better measures of the impoverishment of arterial culation.

While in the heart sudden arterial occlusion is usually cognized as a catastrophic event, analogous events in legs are not as universally recognized. Abrupt im- irment of the arterial circulation owing to arterial rombosis occurs in about 10% of all patients who have ronic occlusive arterial disease resulting from athero- erosis.[7] The symptoms of sudden arterial occlusion ecting the main artery of the leg are variable. Classi- ly, there is pain or numbness and variable degrees paresis, pallor, and coldness. On examination there absence of pulsations, pallid skin, collapsed veins, pesthesia or anesthesia, and lowered temperature of skin. Unless these early signs and symptoms regress thin several hours, necrosis (gangrene) of variable ent or persistent pain indicative of ischemic neuritis ally results.

Ischemic neuritis, observed not uncommonly in pa- nts with chronic occlusive arterial disease in the legs, manifested by constant or paroxysmal pain, commonly scribed as burning or jabbing. It involves areas over ich the skin is intact, usually the dorsum and plantar rface of the foot; it may extend into the leg. There is associated hyperesthesia of the skin.

SOME UNUSUAL AND ISOLATED PHENOMENA

The most frequent problems resulting from arterio- lerosis have been briefly outlined in the preceding para- aphs, but in addition it seems worth while to mention me of the unusual or isolated phenomena resulting om arterial disease. One might imagine oneself on grand unds with a professor who has called back into the hos- tal many of the patients with unique conditions to im- ress a group of visiting dignitaries. As one passes from ed to bed, one might see the following patients: The rst might be a middle-aged man with a well-documented ory of severe hypertension for more than 10 years; he has had a stroke, and now the blood pressure has been normal for 2 years. The cerebrovascular accident has unexpectedly and unpredictably cured his essential hypertension.

The next patient is one who complained of the sudden onset of a continuous noise in his head and presents a proptosis of one eye. A loud continuous bruit is heard over the side of the head, and the diagnosis of an arteriovenous fistula within the cavernous sinus is made. Another patient, elderly and stooped, presents a marked pulsation on the right side of the neck. It has been suspected that she has an aneurysm, but it is demonstrated that the carotid artery is only bent forward, producing the clinical picture of the "kinked carotid." The next patient is elderly and came to the physician because of postural faintness. The physician finds difficulty in determining the blood pressure in the arms, and the pulsations in the arteries of the arms and neck are minimal. There are good femoral pulsations and hypertensive blood pressure readings in the legs. The picture appears as a "reverse coarctation" and is usually due in patients who are old to atherosclerotic narrowing of the origins of the vessels arising from the aortic arch.

In the next bed perhaps there is a patient who has a history of several prolonged periods of chest pain. The electrocardiogram showed evidence of anterior myocardial infarction, and recently there had appeared a systolic thrill and loud murmur, which was maximal in the midsternal area. There has been a rupture through the infarcted ventricular septum, and this patient has been the rare one that has survived for some months. The professor passes a young woman with Cushing's syndrome and advanced atherosclerosis to spend a little time with the patient in the next bed, also a young woman. She has had clinically a myocardial infarction with diagnostic evidence on the electrocardiograms. At present she is troubled by marked effort intolerance related to intermittent claudication and angina pectoris. Age is emphasized as obviously not being a factor; the condition is one of xanthoma tuberosum, as is readily apparent because the small yellowish plaques about the eyes are noted and the nodules in the region of the Achilles tendons and elbows are palpated. The next patient is a man who has classical intermittent claudication, yet there are normal pulsations in the arteries of his lower extremities. When the man walks, the feet become pallid and remain so for a minute or two after his exercise, during which time pulsations have disappeared in the arteries. This is the syndrome of arteriospastic claudication or paradoxical reaction (constriction) of arteries to exercise. It is wondered whether such a reaction could occur in the coronary circulation, but the professor receives no encouragement for such a hypothesis.

To end these special rounds, the professor may have kept his prize patient, and one could not but be affected by his ecstasy as the history is given. A man had normal blood pressure one month, then unexpectedly severe hypertension developed; an excretory urogram revealed no evidence of function of one kidney. The surgeon removed the kidney, and the blood pressure has been normal thereafter. The lesion was an atherosclerotic stricture of the renal artery, with the production of an ischemic kidney and renal hypertension.

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[7] Allen, E. V.; Barker, N. W., and Hines, E. A., Jr.: Peripheral Vascular Diseases, Philadelphia, W. B. Saunders Company, 1946.

Many other patients would have been worthy of presentation, but these should have been adequate to indicate that the clinical study of arteriosclerotic patients may lead to finding fascinating symptom complexes mixed with the more stereotyped conditions.

In conclusion, the manifestations of arteriosclerosis as they may appear in the patient have been discussed. The importance of occlusive-intimal disease (atheroscle has been emphasized as the most important catego arteriosclerotic disease. When one expands the pro to consider the morbidity and mortality within the po lation at large, the picture is an appalling one. The demiological manifestations of arteriosclerosis are de of persons in their most productive years, the crip of many others, and a heavy sociological problem of ing for many disabled persons, who tend to occupy hospital beds for months or years.

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CHOLESTEROL, "GIANT MOLECULES," AND ATHEROSCLEROSIS

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The general idea is well established that there is an important relationship between the concentration of cholesterol in the blood plasma and the development of atherosclerosis and coronary heart disease. The study of the epidemiology of the disease is as yet only in its crudest beginnings, but two points are agreed. Whenever there is a persistently high level of cholesterol in the blood, there is a tendency toward early and severe atherosclerosis. And whenever there is severe atherosclerosis, there is a high incidence of coronary heart disease.

The list of diseases in which occurrence of coronary heart disease is unduly frequent is familiar: diabetes, nephrosis, hypothyroidism, xanthomatosis. These have the common property of being associated with hypercholesteremia. Moreover, in animal experiments whenever it is possible to produce sustained, marked hypercholesteremia, there is eventually development of atherosclerosis. Finally, there is the crucial fact that patients with definite coronary disease tend to have distinctly elevated levels of cholesterol in the blood serum.[1]

In spite of these facts, there is insufficient information about the utility of the serum cholesterol measurement as an indicator of atherosclerosis or as a predictor of impending danger from coronary heart disease. There are several reasons for this: 1. Normal standards for serum cholesterol have been inadequate until recently. 2. I ing man coronary heart disease can be recognized not atherosclerosis alone. 3. Patients with coronary ease show a wide range of concentrations of choles in the serum, and this overlaps the wide range of v found in persons who are clinically healthy.

SEARCH FOR OTHER CRITERIA

It is understandable, then, that there is a vig search for other characteristics by which healthy pe and those who have or in whom coronary heart di may develop can be discriminated. It is particularl sired to have a measure of the tendency to coronar ease before appearance of the clinically recogn condition. This is essential for the development, t and application of preventive measures; its ab a major reason for the fact that as yet no real prev hygiene can be offered.

The search for discriminating characteristics ha centrated on the blood for good reasons: 1. With ra ceptions, coronary heart disease requires the prese atherosclerosis for its development. 2. A basic char istic of atherosclerosis is the deposit of cholester fatty materials in the arterial walls. 3. The deposi stances do not seem to be manufactured locally arteries, so they must come from the blood. 4. Bl accessible for sampling and analysis.

Besides total cholesterol, attention has been devo cholesterol esters, fatty acids, phospholipids, and v ratios and combinations of these variables. So far n these variables has been shown to be superior serum total cholesterol concentration as a predic coronary heart disease. Most recently there has great interest in the lipoproteins and in certain density materials which may be separated in the centrifuge. It is important to examine the eviden the current excitement about these.

G SUBSTANCES OR "GIANT MOLECULES"

For some time it has been evident that most cholesterol does not exist in simple solution in the plasma but is associated in complexes with protei lipoids. Gofman and his colleagues in Berkeley ha veloped methods for estimating the amounts of suc density complexes by observing their flotation ultracentrifuge.[2]

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Read in the Symposium on Arteriosclerosis and Hypertension before the Joint Meeting of the Section on Experimental Medicine and Therapeutics and the Section on Internal Medicine at the one Hundredth Annual Session of the American Medical Association, Atlantic City, June 15, 1951.

[1] (*a*) Davis, D.; Stern, B., and Lesnick, G.: Lipid and Cholesterol Content of Blood of Patients with Angina Pectoris and Arteriosclerosis, Ann. Int. Med. **11**: 354, 1937. (*b*) Poindexter, C. A., and Bruger, M.: Cholesterol Content of Blood in Heart Disease, Arch. Int. Med. **61**: 714 (May) 1938. (*c*) Lerman, J., and White, P. D.: Metabolic Changes in Young People with Coronary Heart Disease, J. Clin. Invest. **25**: 914, 1946. (*d*) Collen, M. F.: Blood Cholesterol Studies in Coronary Artery Disease, Permanente Found. M. Bull. **7**: 55, 1949. (*e*) Gertler, M. M., and Garn, S. M.: Lipid Interrelationship in Health and in Coronary Artery Disease, Science **112**: 14, 1950. (*f*) Gertler, M. M.; Garn, S. M., and Lerman, J.: The Interrelationships of Serum Cholesterol, Cholesterol Esters and Phospholipids in Health and in Coronary Artery Disease, Circulation **2**: 205, 1950.

[2] (*a*) Gofman, J. W.; Lindgren, F. T., and Elliott, H.: Ultracentrifugal Studies of Lipoproteins of Human Serum, J. Biol. Chem. **179**: 973, 1949. (*b*) Gofman, J. W.; Lindgren, F.; Elliott, H.; Mantz, W.; Hewitt, J.; Strisower, B., and Herring, V.: The Role of Lipids and Lipoproteins in Atherosclerosis, Science **111**: 166, 1950. (*c*) Gofman, J. W.; Jones, H. B.; Lindgren, F. T.; Lyon, T. P.; Elliott, H. A., and Strisower, B.: Blood Lipids and Human Atherosclerosis, Circulation **2**: 161, 1950. (*d*) Gofman, J. W.: Blood Lipid Transport in Hypertensive Patients and Its Relation to Atherosclerotic Complications, in Hypertension: A Symposium, edited by E. T. Bell, Minneapolis, University of Minnesota Press, 1951, p. 379.

is the theory of the Berkeley group that certain of : complexes are somehow productive of, or at least associated with, the development of atherosclerosis. real villains in the piece, it is suggested, are the "giant ecules" which are characterized in the ultracentrifuge –10 to —20 Svedberg units of sedimentation. It is venient to call these the "G substances."

'hat is the evidence that the G substances are respon- for atherosclerosis and coronary heart disease? litatively, it is exactly the same kind of evidence :h supports the contention that the total cholesterol surement is significant. The conditions in which occence of coronary heart disease is unduly frequent, , diabetes, nephrosis, hypothyroidism, and xanthoosis, are found to be associated with a tendency to levels of G in the serum. When atherosclerosis is luced in animals by feeding massive doses of cho-rol, the level of G is much increased. And when the m G is measured in patients with coronary heart dis-, there is found a distinct tendency toward higher ls than are found in clinically healthy people.

ut how does the G measurement compare, in these ects, with the simple measurement of total choles-l? A full answer would require long-range and large-researches, but highly significant indications can be ined now. In animal experiments what is the correla- between the degree of atherosclerosis and the serum l of G, on the one hand, and of cholesterol, on the er? How sharply is it possible to discriminate between onary patients and clinically "normal" persons with G criterion as compared with the cholesterol cri-on? What is the correlation between the G and the lesterol concentrations in the serum? The California kers have not provided analyses of these points, but r own and other raw data in the recent literature can ıssembled and analyzed.

CORRELATIONS BETWEEN G AND CHOLESTEROL

'irst, the simple correlation between G and cholesterol ısurements may be considered. Gofman and others [2c] eatedly suggest that there is little or no significant cor-tion and state, "For any particular patient the analy-l serum cholesterol is of no value in predicting the centration of S_f 10-20 molecules (G)." But they pro- scatter diagrams of the data on 89 clinically "nor-" persons and 98 patients with myocardial infarctions. these 187 men the crude correlation coefficient be-en G and total cholesterol is r (coefficient correlation) +0.56, with the 95% limits of probability being).45 and +0.66.

This estimate of correlation is minimal; it is less than true correlation because of the fallibility of the meth-. The analytical uncertainty for a single measurement cholesterol is of the order of 5% or more, and uncer-ıty in the G measurement is very large indeed. The rkeley group originally stated that the limit of resolu-n for G was 5 mg. per 100 ml., but personal com-ınications indicate a considerably greater uncertainty. om the data in my own and other laboratories, it ap-ars that the uncertainty of a single measurement is of order of ±10 mg. of G per 100 ml. Since 42% of 187 values at hand for correlation analysis are less ın 15 mg. per 100 ml., the effect of such random uncertainty is very large. Without acceptable reliability data, it is impossible to estimate precisely the true correlation which would be found if infallible analytical methods were available. It is clear, however, that the true relationship between G and cholesterol measurements must be considerably closer than indicated by the crude value of r = +0.56 and may approach the value of r = +0.7.

ANIMAL EXPERIMENTS

The published direct evidence that G may be a useful predictor of the degree of atherosclerosis is from an experiment on rabbits fed cholesterol with subsequent blood analysis and ultimate grading of the atherosclerosis (0 to +4) by the pathologist.[2c] From the published raw data we can calculate the correlation between the concentration of G in the serum and the degree of atherosclerosis found. The coefficient is r = +0.77. At the same time these data appeared (August, 1950) a very similar study was reported from Toronto in which the degree of atherosclerosis was similarly graded in cholesterol-fed rabbits and the serum cholesterol measured.[3] From these raw data I have calculated the coefficient of correlation to be r = +0.85.

Both of these correlations are highly significant. They show that in cholesterol-feeding experiments on rabbits both G and cholesterol measurements have value in predicting the resulting degree of atherosclerosis. With G the forecasting efficiency is indicated to be 37%, i. e., by measuring G the predicting error is reduced by 37% from that which would obtain without that information. With the cholesterol measurement the forecasting efficiency is 50%. Neither measurement is a very precise predictor, and certainly G is not better than cholesterol.

NORMAL PERSONS COMPARED WITH CORONARY PATIENTS IN REGARD TO G

The main argument for the importance of the G concentration in the serum has been the comparison of the values found in clinically healthy persons with those found in patients who have had myocardial infarctions, and hence are presumed to represent advanced degrees of atherosclerosis. The data provided [4] clearly indicate a substantial tendency for the "patients" to have elevated levels of G.

In the published articles there are no critical analyses of the material. It is not enough, for example, to show that there is a difference between the average values of G in the "patients" as compared with the "normal" persons. Since the data are greatly skewed in distribution, ordinary averages have little meaning anyway. But average differences are not the issue. What is wanted are answers to the following questions: 1. Precisely how well does the G measurement differentiate between patients and "normal" persons? 2. How does G compare with the cholesterol measurement in this regard?

THE G MEASUREMENT AS A DISCRIMINATOR

Fortunately, it is possible to reconstruct the essential raw data from the published diagrams and to proceed with an analysis from these. Even so, the analysis presents difficulties because of major changes in calibrations from one paper to the next and because of internal inconsistencies in the data. For example, Figure 4A [2d] shows the mean values in "normal" men arranged by ages, Figure 4C compares "normal" men aged 41 to 70 with men of similar age who have had infarcts. But the two sets of "normal" men do not correspond; if Figure 4A is accepted as the standard, it would appear that the average age of the normal men aged 41 to 70 was about 40. Alternatively, it would be necessary to insist that the discrimination between patients with infarcts and normal persons is considerably less than indicated in Figure 4C. To avoid such problems I have relied solely on the scatter diagrams [2c] which show the individual data.

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[3] Firstbrook, J. B.: Effect of Choline Chloride on Development of Atherosclerosis in the Rabbit, Proc. Soc. Exper. Biol. & Med. 74:741, 1950.

[4] Footnotes *2b*, *c*, and *d*.

TABLE 1.—*Percentages of Coronary Patients and "Normal" Persons in Whom Given Values of G Concentration Were Exceeded* * †

Patients (%)	20	30	40	50	60	70	80	90
"Normal" persons (%)	6	10	14	20	26	32	42	54
D ratio	3.3	3.0	2.9	2.5	2.3	2.2	1.9	1.7

* Men 31 to 50 years.
† Calculated from raw data in Gofman and others (Figs. 4 and 5).[2c]

The material on G measurements has been analyzed in several ways for each of various age ranges. Since the results are all consistent, it is enough to consider in detail only one form of the analysis of the findings on men aged 1 to 50. A suitable beginning is to arrange the data for atients and for normal persons in arrays from lowest to highest values of G. It is then easy to find the proportions of patients and normal persons in whom any given value of G is exceeded. The results for the men aged 31 to 50 are summarized in Table 1.

Table 1 also gives the ratio between the proportions of patients and normal persons in whom particular values of G are exceeded. A value of G which is exceeded in 50% of the patients is also exceeded in 20% of the normal persons, and the discrimination at this G level is indicated by the discrimination ratio D = 50/20 = 2.5. The best discrimination is achieved with a level of G so high that it is exceeded in only 20% of the patients; at this level 6% of normal persons are included, and the value of D is 3.3.

It is obvious that the overlap is very great, but it might be suggested that these discrimination ratios indicate some validity for predicting coronary disease and that, for example, a blood value which is exceeded by 50% of the patients could be judged to indicate coronary disease with a probability of 2.5 to 1. Actually, this would be the case only if the population were made up of equal numbers of normal persons and persons with coronary disease. But in a random sample of adults in the United States it would be closer to reality to predict that perhaps 5 or 10% have or are threatened with coronary disease. Suppose then that a population is made up in the ratio of 9 to 1 of "normal" persons and persons with coronary disease and that a critical level for G is selected which *is exceeded in 50%* of the patients with coronary disease. And now suppose that G measurements are made on this mixed population of normal persons and persons with coronary disease. If there are 1,000 persons in all, i. e., 100 with coronary disease and 900 who are norm will be found that 230 persons (0.2 × 900 + 0.5 × =230) will have values exceeding our critical lev these only 50 are actually coronary patients. The r is we have "found" only half of the persons with cor disease and have erroneously diagnosed coronary dis in 180 normal persons.

This is disconcerting. Perhaps one should raise critical value of G to the point at which it is excee in only 20% of coronary patients and at which discrimination ratio is at a maximum. With this hy thetical population of 1,000 persons, it would the found that 74 persons (0.06 × 900 + 0.2 × 100 = would show G values above the critical level. Only of the coronary patients would have been discove while 54 normal persons would have been erroneo diagnosed.

Now it may be objected that this analysis does allow for the fact that in some of the persons who w be judged to be normal, clinically, serious atheros sis may be developing, and they are really threatened coronary heart disease in the near future. Suppose *10% of the Berkeley* "normal" persons are of this nd that they have a distribution of serum G values id cal with the coronary patients. The values in Tal should then be changed to those given in Table 2. the calculation can be repeated for a hypothetical po tion of 900 "true normal" persons and 100 persons are potential patients with coronary disease. With a cal level of G which is exceeded in 50% of the normal persons, a total of 200 persons (0.167 × 9 0.5 × 100 = 200) receive the label "coronary pati Of these 150 are true normal persons while 50 actual coronary patients are missed.

This analysis could be elaborated further. For exa all the figures cited here are attended by errors whi be estimated from elementary probability theory. ance for the standard errors of the various propo would still further increase the uncertainty of the p tions which can be made from the G measuremen

TABLE 2.—*Percentages of Coronary Patients and Normal" Persons * in Whom Given Values of G Conc tration in Serum Are Exceeded* †

Coronary patients	30	40	50	60
Total normal persons	10	14	20	26
False normal persons	30	40	50	60
True normal persons	7.8	11.1	16.7	22.2
D ratio ‡	3.8	3.6	3.0	2.7

* Those not in the predisease state. It is assumed that 10% "total normal" persons are actually in the predisease state and th "false normal" persons have the same serum G picture as the c patients.
† Calculated from data on men 31 to 50 years in Gofman an (Figs. 4 and 5).[2c]
‡ Equals value in first line divided by value in fourth line.

The situation is no more favorable for women older men than for the 31 to 50 year age grou sidered so far. Table 3 summarizes data comparin 31 to 50 and 51 to 60. The discrimination is poore the older men, as is evident from the D ratio val Table 3.

Poor as the predictive value of the G measurem it is conceivable that it might be better than the me ment of cholesterol. But it is not necessary to spe there are excellent data for a detailed comparison.

ıAL PERSONS COMPARED WITH CORONARY PATIENTS IN REGARD TO CHOLESTEROL

ıe Boston study of Gertler, Garn, and Lerman [1e, f] red 97 men who had had myocardial infarctions and men of the same age who were clinically "healthy." l respects these men seem entirely comparable to the 50 year old men studied at Berkeley, but the Boston ers studied cholesterol (and other items) instead e G concentration in the serum. From the published [1f] it is possible to construct the counterparts of es 1 and 2 for cholesterol values. To save space only e 4, the counterpart of Table 2, need be considered. ıble 4 indicates that a critical level of cholesterol h is exceeded in 30% of the men known to have nary disease will include only 3% of men labeled ically healthy." Moreover, if the same assumption ıde about "false normal" persons as was made in the ysis of the G data, it appears that this cholesterol would include no normal persons. A lower choles- level, which would be exceeded in 40% of the cor- y patients, would result, with the hypothetical ılation mentioned earlier, in finding 41 persons ı11 × 900 + 0.4 × 100 = 41), all but one of whom ld be properly labeled "coronary patient." How- , this level would fail to include 60 persons with al coronary disease. At the next lower level of serum esterol which would be exceeded in 50% of the ınary patients, from this same population there would ecorded 130 persons with coronary disease; 80 of e would be erroneously diagnosed.

E 3.—*Discrimination Between Clinically Healthy Men and Men with Coronary Heart Disease by Means of Measurements of G* *

ıge	Type †	No. Men	% of Men with G ‡		
			5	20	40
1-50	P	72	95.8	73.6	34.7
1-50	N	483	60.5	33.8	11.4
1-50	D	..	1.6	2.2	3.0
1-60	P	77	93.3	68.0	38.7
1-60	N	99	66.7	34.4	16.2
1-60	D	..	1.4	2.0	2.4

ılculated from data from Gofman and others (Figs. 4 and 5).[2c]
?" indicates coronary patient and "N" "normal" persons.
ınilligrams per 100 ml. of serum. Note that these values are about . less than are reported from the most recent calibrations.

VALIDITY OF THE ANALYSIS

: would, of course, be desirable to have for these ıparisons both G and cholesterol measurements on same men. The Berkeley group have, in fact, pub- ːd [2c] (Fig. 14 and 15) data which would appear to ıuitable for such a comparison of G and cholesterol ısurements as discriminators between "normal" per- s and coronary patients. In personal communications ı Dr. Gofman it was learned that these "normal" per- s and coronary patients for whom both G and choles- ıl were recorded were of different ages, the "normal" sons being younger, on the whole, than the coronary ients. Because of this, Dr. Gofman objected to the a of making a comparative analysis with these data. wever, this age difference would not seem to bar nparisons of the two discriminators unless normal : trends for cholesterol and for G are substantially different. Actually, the age trends for these two variables are very similar,[5] at least to an age of about 60. Calculations of data on the age trends for healthy men for cholesterol [5a] and for G [2d] show that, with the value at age 25 taken as 100% in the case of each variable, the median "normal" values for cholesterol and G, respectively, are 109 and 109 at age 35, 128 and 128 at age 45, 139 and 143 at age 55. These close agreements indicate that the data in Gofman's [2c] (Fig. 14 and 15) may be properly used to compare the two criteria as discriminators between healthy men and men with infarctions.

TABLE 4.—*Percentages of Coronary Patients, "Total Normal" Persons, "True Normal" Persons, and "False Normal" Persons in Whom Given Values of Total Cholesterol Concentration in Serum Are Exceeded**

Coronary patients	30	40	50	60	70
Total normal persons	3	5	13	23	33
d ratio †	10.0	8.0	3.8	2.6	2.1
False normal persons ‡	30	40	50	60	70
True normal persons §	0	1.1	8.9	18.9	28.9
D ratio ‖	Infinite	36.3	5.6	3.2	2.4

* Calculated from data on men 30 to 50 years in Gertler, Garn, and Lerman.[1f]
† Equals value in first line divided by value in second line.
‡ Those who are clinically healthy but actually in the predisease state. It is assumed that 10% of the "total normal" persons are actually in the predisease state and that these "false normal" persons have the same serum cholesterol picture as the coronary patients.
§ Those not in the predisease state.
‖ Equals value in first line divided by value in fifth line.

The principal results are summarized in Table 5. They show that this material conforms very well with the results summarized in Tables 1 through 4. Both G and cholesterol values show slightly poorer discriminations than obtained in the previous analysis. But the relationship between the discriminations obtained with the two criteria, which is the point at issue, is very similar to the result obtained in the comparison of the Berkeley and the Boston findings for men 30 to 50 years. In these Berkeley versus Berkeley comparisons the crude D ratios with G as the criterion averaged 65% of the crude D ratios with cholesterol as the criterion, i. e., the average discrimination with G was roughly two-thirds as good as with cholesterol. In the Berkeley versus Boston comparisons (see Tables 1 and 4) over the same range, the crude D ratios with G averaged 66% of the D ratios with cholesterol.

TABLE 5.—*Percentages of Eighty-Nine Clinically Healthy Men and Ninety-Eight Men with Coronary Disease in Whom Given Values of Serum Concentration of G and Total Cholesterol Are Exceeded* *

	% of Men Included				
G in coronary patients	30	40	50	60	70
G in normal men	12	19	25	35	42
G ratio	2.5	2.1	2.0	1.7	1.7
Cholesterol in coronary patients	30	40	50	60	70
Cholesterol in normal men	7	13	17	19	26
Cholesterol ratio	4.3	3.1	2.9	3.1	2.7

* Calculated from raw data given by Gofman and others (Figs. 14 and 15).[2c] The "normal" persons had a younger average age than the coronary patients.

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5. (*a*) Keys, A.; Mickelsen, O.; Miller, E. v.O.; Hayes, E. R., and Todd, R. L.: The Concentration of Cholesterol in the Blood Serum of Normal Man and Its Relation to Age, J. Clin. Invest. **29**: 1347, 1950. (*b*) Gofman.[2d]

These results, then, are in agreement with our first analysis, and they also suggest that the data in Figures 14 and 15 of Gofman and others [2c] may be applied in further exploratory analyses.

COMBINED G AND CHOLESTEROL IN PREDICTION

Since cholesterol and G concentrations in the serum are by no means perfectly correlated and since each measurement has, by itself, some value in discriminating between normal persons and persons with coronary disease, it is reasonable to suggest that a combination of the two criteria could be superior to either taken alone. The only data now available to test this idea are those discussed in the preceding section of this paper. Though these have the disability of the questionable age factor, the foregoing analysis suggests that they may be suitable for exploring the question of combined criteria.

Accordingly, systematic trials were made of combinations of G and cholesterol critical levels in the general range which would include 30 to 70% of the coronary patients. For example, it was found that when a critical level was set at 20 mg. of G and 220 mg. of total cholesterol (per 100 ml. of serum), this combined criterion was exceeded by 57.1% of the coronary patients and by 23.7% of the normal persons, giving a D ratio of 2.37.

In all, 14 different combinations were tested. All of these produced better *discrimination, i. e.,* higher D ratios, than were obtained with critical levels of G alone hich included comparable percentages of the patients. On the other hand, none of these combinations surpassed, or even equaled, the discrimination obtained with total cholesterol alone.

These results would indicate that the G measurement makes no significant independent contribution to the iscrimination between "normal" persons and persons with coronary disease. If the data were completely reliable, in fact, it might be concluded that the only reason G measurements have any discriminating power is because they are (imperfectly) correlated with total cholesterol. But the intention is not to insist on pushing the analysis to this limit. These trials merely indicate, again, that there is no basis as yet for ascribing any more virtue to the G measurement than to the cholesterol measurement.

COMMENT

In addition to the analyses summarized previously, the published data from the Berkeley group [2c, d] and of the Boston group [1f] have been treated and compared in several other ways, including analysis of successive deciles of blood concentration and calculation of biserial correlation coefficients.[6] Furthermore, in estimating the probable success of application of these blood analyses to individual and group diagnoses, several different assumptions were tried in regard to the frequency of recognizable and impending coronary disease.

All the findings from these various analyses were in essential agreement with the analysis previously presented. For example, the biserial coefficient of correlation was computed for the presence of coronary dis versus serum cholesterol level (in the Boston data) a versus serum G level (in the data on men 31 to 50 Gofman [2c]). For cholesterol the biserial r = 0.61, S.E (standard error coefficient correlation) = ±0.08; for G the corresponding values are r = 0.41, S. E.$_r$ = ±0.1

By making various assumptions it is possible to f bases to suggest that the predictive value of G a cholesterol measurements may be higher than indica *in the preceding sections of this paper.* For exampl may be assumed that half of the "normal" persons co sidered here are actually atherosclerotic and are serio threatened with coronary heart disease and that th "false normal" persons have blood concentrations of G and cholesterol which conform to the coronary patien category. In this case the discrimination achieved by t blood analyses would be much better, i. e., it would b possible to find critical levels of G and total cholester which would separate true "normal" persons from actu and potential coronary patients with considerably le uncertainty. But this would not change the relations between G and total cholesterol as discriminators; it s would appear that G is no better, and actually may b considerably worse, than cholesterol for these purpos

Caution should be exercised in discussing—and es *mating—the prediction* of coronary heart disease on th basis of the presence of atherosclerosis. It is true that t great majority of adults, at least over 30, have appreciable degrees of coronary atherosclerosis. Beyond th age of 40 it may be that 50% of American men hav marked degrees. This is not, however, evidence that or most of these men will shortly die or be disabled wi coronary heart disease.[7] The questions which prope should be asked *are these:* What percentage of these m are seriously threatened with disaster in the next ye What percentage in the next five years? How well m we predict which men? Only longitudinal studies c answer the last question with precision.

In this paper no attention has been paid to other ite in the blood analysis that have been proposed as havi value in detecting or predicting serious atherosclerosi For the most part, data adequate for a reasonable anal sis are not available. From such data as have been pu *lished it does not seem probable that* any of them—ra of cholesterol to phospholipids, cholesterol esters, lipoproteins, and so forth—will prove markedly superi to total cholesterol for these purposes. But it is rash judge on the basis of the present scanty evidence.

SUMMARY

There is substantial correlation between *the* concent tions in human blood serum of total cholesterol and "giant molecules" characterized in the ultracentrifu by —10 to —20 Svedberg Units of sedimentation substances). The coefficient of correlation is at least the order of 0.6 and may be as high as 0.7. In cholester fed rabbits the resulting degree of atherosclerosis is correlated with both the concentrations of G and chol terol in the serum, *the coefficient* of correlation being the order of 0.8. There is no evidence that the conce tration of G is more critical than that of total cholester

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6. Keys, A.: "Giant Molecules" and Cholesterol in Relation to Atherosclerosis, Bull. Johns Hopkins Hosp. 88: 473, 1951.

7. Morris, J. N.: Recent History of Coronary Disease, Lancet 1: 1 and 69, 1951.

G and total cholesterol show distinct tendencies to aintained in higher concentrations in the serum of ns with coronary disease than in clinically healthy ns. Neither measurement, however, is a good dis- inator between such patients and healthy persons. ere is any advantage to one of these measurements over the other in detecting or predicting coronary disease, the evidence is in favor of total cholesterol. There is no evidence that a level of G concentration in the blood may be of practical value as an indicator of the probability of present or impending coronary disease.

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ORGANIC NEUROLOGICAL SYNDROMES DIAGNOSED AS FUNCTIONAL DISORDERS

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is generally recognized that functional components be present wherever there is organic disease, neuro- al or otherwise. Such functional material can at s dominate the picture to such a degree that it is ible for the physician to overlook otherwise signifi- signs of physical disease. This paper is not intended criticism of diagnostic failure. It is rather a plea for oser working relationship between psychiatry and ology. We hope to highlight the need for viewing patient as a whole, interrelating physical and psychi- problems. Limited investigation is inadequate insur- e when dealing with patients. The importance of tiple examinations as well as reasonable competence eurology must be stressed.

)ver a period of several years our experience has been ote that a fair number of alleged psychiatric cases ultimately diagnosed as neurological. We feel that e have been enough such instances to warrant a rological unit within a psychiatric service. Thus, it has our good fortune, as a result of initial neurological eys of all patients and follow-up examinations, to over definite neurological disorders, at times quite xpectedly. All the cases in this series identified as rological were diagnosed by physicians of our neuro- cal unit in the course of such routine studies and ow-up examinations.

Ve must point out that we are dealing with veterans rently under treatment in a Veterans Administration ic. The recorded diagnoses are based on initial find- at the time of development of symptoms in military vice as well as signs and symptoms demonstrated by ther examinations after leaving military service. We l that the results of our survey are just as applicable private and civilian types of practice. In fact, most of se patients have had much contact with private gen- l practitioners as well as private psychiatrists.

As a result of our experience, it is now standard pro- lure for all patients, regardless of diagnosis, to have horough neurological examination shortly after arriv- at the Mental Hygiene Clinic. If the patient is under atment for any extended period of time, he receives a peat" neurological as well as a general physical amination annually, unless during the course of treat- nt he has shown some suspicious signs which warrant earlier neurological or other medical review.

REVIEW OF CASES

A total of 395 neurological cases were reviewed. Three hundred forty-two cases were correctly diagnosed early in the course of the syndromes. However, there were 53 cases (or 13.4%) incorrectly diagnosed for varying lengths of time prior to an eventual change to a definitive neurological diagnosis. Figures are given on the length of time these cases were handled as psychiatric before a change of diagnosis was established by neurological examinations (Table 1). The largest number of cases were considered functional for a period of two to six years before a change of diagnosis was made. We have a mean of 4⅕ years, with the greatest number of cases (17) handled as functional for four years. In these cases all the patients were given psychotherapy at one time or another for varying lengths of time, and most of them had had contact with more than one psychiatrist. The psychiatrists concerned were Veterans Administration clinic psychiatrists, contract clinic psychiatrists, as well as private panel psychiatrists.

TABLE 1.—*Duration of Time Carried as Psychiatric Prior to Change to Neurological Diagnosis*

Yr.	No. of Patients
8	1
7	2
6	7
5	10
4	17
3	9
2	6
1	1

During this period in many of these patients the neurological disorder was undoubtedly progressing to a point where the correct diagnosis could be made with greater

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Technical assistance was given by Bernard Locke, Ph.D.

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facility. It may also be true that in some instances, with our limited armamentarium for treating certain neurological disorders, the delay in diagnosis perhaps did not make too much difference therapeutically. Nevertheless, we are also dealing with such conditions as Parkinson's syndrome, expanding lesions of the brain, epilepsy, Ménière's syndrome, herniated disc, and so forth, which can be treated and the needless distress alleviated by proper care. It is not inconceivable that a patient's life, in some instances, could be considerably prolonged if his disorder, as in the case of a brain tumor, were correctly diagnosed at an early stage.

Table 2.—*Nature of Psychiatric Diagnosis Prior to Change to Neurological Diagnosis*

Conversion reaction or hysteria	17
Mixed or unclassified neurosis	11
Neurasthenia or hypochondriasis	10
Anxiety reaction	10
Somatization of one type or another	8
Psychopathic personality	5
Dementia praecox	2
Anxiety hysteria	1
Obsessive-compulsive neurosis	1

Some of the psychiatric diagnoses used for these patients prior to change of diagnosis are listed (Table 2). In some instances a single patient was diagnosed differently by different psychiatrists. Thus, it was not unusual to find that a patient over a period of four years might have two or more diagnostic classifications. The frequency of the diagnosis of conversion or hysteria is worth noting.

The patients have been divided for convenience into three groups, A, B, and C (Tables 3, 4, and 5). Group A consists of those patients who are seen most frequently in the clinic and group B of those who are observed less frequently. Group C consists of those patients correctly diagnosed initially. In Table 3 it is worth noting that the highest percentages of incorrect diagnosis appear in the categories of Parkinson's syndrome, multiple sclerosis, and expanding lesions of the brain. We feel that, particularly with the first two, functional signs of one type or another are extremely frequent as precursors of organic disease and may very well be part and parcel of the total disease process as well as a personality reaction to the disease. The sampling of cases of individual disease entities in Table 4 is limited in number but points to a potentially high proportion of functional diagnosis prior to establishment of correct neurological diagnosis. In most of the disorders listed in Table 5, there is an acute onset and obvious clinical signs early in the course, so that diagnosis tends to be made with greater facility.

Table 3.—*Commonest Neurological Syndromes (Group A)*

	No. Cases	No. Correct Diagnosis	No. Labeled Psychiatric Prior to Change of Diagnosis	% Incorrect Diagnosis
Parkinson's syndrome	30	18	12	40.0
Multiple sclerosis	30	20	10	33.3
Expanding lesions of brain	13	9	4	30.7
Herniated disc	29	24	5	17.2
Neuritis and neuralgia (21 of traumatic origin)	46	43	3	6.5
Idiopathic epilepsy	157	148	9	5.7

The other conditions, such as endocrine distur
neurofibromatosis, and so forth, tend to be easily
nosed in most instances.

COMMENT

Parkinson's syndrome, multiple sclerosis, expa
lesions of the brain, and herniated disc, of the com
neurological syndromes seen in this clinic, show
highest percentage of cases considered to be func
prior to clarification of the diagnosis. Other cond
seen less frequently, about which functional diag
were made, include such varied diseases as syringom
spinal cord tumor, primary lateral sclerosis, amyot
lateral sclerosis, Raynaud's disease, myotonia at
and so forth. Of 157 cases of epilepsy, 148 we
rectly diagnosed. Only nine (or less than 6%
incorrectly diagnosed and handled as psycho
until epilepsy was eventually verified by means of
mal electroencephalograms and the witnessing
fide seizures. It is true that in cases of so-called id
epilepsy a neurological examination is generally
ductive of abnormal findings.

Table 4.—*Less Common Neurological Disorders (Gro*

	No. Cases	No. Correct Diag-nosis
Neurosyphilis	5	4
Peripheral vascular diseases	6	..
Thromboangiitis obliterans	..	5
Raynaud's disease	..	..
Muscle diseases	6	..
Muscular dystrophies	..	4
Myasthenia gravis	..	1
Myotonia atrophica	..	..
Arteriosclerosis and other vascular brain diseases	10	8
Spinal neoplasm	3	2
Amyotrophic lateral sclerosis	3	2
Syringomyelia	3	2
Encephalitis	3	2
Primary lateral sclerosis	1	..
Ménière's syndrome	1	..

Table 5.—*Disorders Correctly Diagnosed Initially (G*

	No. Case
Radiculitis	27
Transverse myelitis	6
Meningitis	7
Poliomyelitis	1
Neurofibromatosis	2
Internal hydrocephalus	1
Osteoma of the skull	1
Endocrine disturbances:	
Thyrotoxicosis	2
Fröhlich's syndrome	1
Myxedema	1

In some instances organic disease was suspe
some time, though the case continued to be
"neurosis." Clarification of organic disease was n
lished until the disease had progressed much fa
is possible in many such cases that early in the
enough concomitant psychiatric symptoms may
ent to mask the organic picture, frequently ca
psychiatric diagnosis.

It is our impression that so-called functional symptoms a neurotic nature occur more readily as precursors of ganic disease in certain conditions such as Parkinson's ndrome or multiple sclerosis. We believe that neurotic aits in such patients, having existed prior to onset of urological disease, are accentuated in the early stages the neurological disorder, and possibly aggravated later the disease progresses. A neurologically disabled pa-nt is faced with conditions requiring adjustment which ay be beyond his capacity. Emotional or even mental mptoms may result from activation of unconscious nflicts, which until then had been under control. This ay account for what is often described as psychogenic erlay in many physically ill patients, neurological or herwise. Braceland and Giffin[1] in their paper on mul-ple sclerosis and Brenner, Friedman, and Merritt[2] in eir work on basal ganglia syndromes were impressed ith the variability of psychiatric symptoms and person-lity organizations among their cases. With this we are complete accord.

It is probably true that many cases, had they been udied by trained neurologists, might have been correctly iagnosed earlier in the course of the disease process, ough it is worth commenting that neurologists, too, are ot infallible. To simply say that a patient has had a eurological check-up somewhere along the line is not ifficient proof that there has been real neurological learance. Unfortunately, most psychiatrists, as well as ost other specialists, are not adequately trained in eurological examination and interpretation of neurological signs. We believe that the nearly 14% of cases considered to be functional for periods averaging more than four years prior to establishment of a neurological diagnosis warrants the establishment of a neurological unit in a psychiatric clinic.

CONCLUSIONS

All patients, before acceptance for psychotherapy, should have a thorough neurological survey in order to rule out or establish organic disease. When neurological disease is suspected, though psychotherapy may be in progress, patients should be reexamined at regular intervals. Adequate training in clinical neurology for psychiatrists should not be an academic issue. It has practical value for both psychiatrist and patient. Needless waste of time, effort, and money can be reduced to a minimum by the approach described in this paper. Psychotherapy, when indicated for neurological cases, can be more definitive, since more precise knowledge as to which part of the picture is organic and which is psychogenic would be available. The establishment of a neurological unit in a psychiatric service is justified.

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EVALUATION OF PSYCHOGENIC SYMPTOMS IN GENERAL MEDICINE

USE OF MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

Asher A. White, M.D., Minneapolis

The role of the psyche in the production of somatic ymptoms is under vigorous discussion in modern medi-al literature. In its evaluation the physician has relied eavily on his instinct of understanding, which is a ebulous and variable faculty. If this subjective method ould be replaced by objective evaluation, diagnosis in his field might be simpler and patients needing psychi-tric evaluation might be recognized more accurately. n view of the need for objective evaluation of the emo-ional factors in the illnesses of patients presenting them-elves to the diagnostician, I began using the Minnesota Multiphasic Personality Inventory, a psychometric test, s an experimental procedure in private medical practice. This test is a new tool, designed to record neurotic atti-udes, which may help to sort out more accurately the patients with nervous symptoms who require psychiatric aid from those who can be managed by the general physician. The object of the present study is to analyze the practical results of use of the test with 70 patients.

DESCRIPTION OF TEST

Hathaway and McKinley[1] published the details of their Minnesota Multiphasic Personality Inventory in sections from 1940 through 1948. They reported in 1943 on the use of this test among psychoneurotic patients in general medical practice.[2] The device as recommended for clinical work consists of a box containing 550 cards with one psychologically significant statement printed on each card. The patient sorts these statements into three groups designated True, False, or Cannot Say, as he considers them applied to himself (Fig. 1). After the

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cards have been sorted by the patient, the responses are recorded and scored by a clerk (Fig. 2). The test scores relate to nine categories: hypochondriasis, depression, hysteria, psychopathic personality, masculinity-femininity, paranoia, psychasthenia, schizophrenia, and hypomania. The significance of responses to the statements on

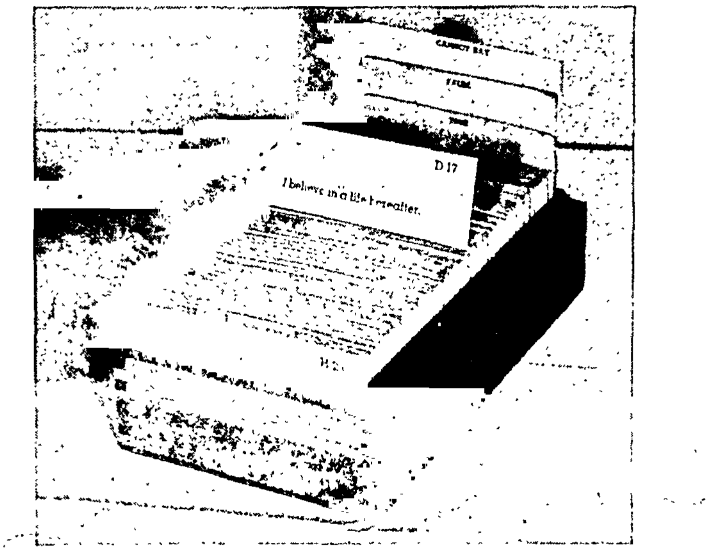

Fig. 1.—Box containing cards with psychologically significant statements to be sorted by patient.

the cards was developed by extensive comparison of the responses of presumably normal persons with the responses of patients who had been studied and given iagnoses by the psychiatric staff of the University of innesota Hospitals.

REVIEW OF LITERATURE

Much has been written since 1940 on the use of the inventory. McKinley and Hathaway[2] emphasized the e of the method in general medical or surgical practice aid to the physician in sorting out neurotic patients in evaluating neurotic states in patients with organic ease.

In a careful comparative study of personality questionnaires in general, Ellis[3] concluded that this test appeared to be the most promising, because its derivation was on an objective basis. Leverenz[4] gave the test to 76 neurotic patients who had been given psychiatric diagnoses prior to testing. The results corroborated the c ical diagnosis in approximately 95% of these ca Using similar methods, Benton[5] secured less freq agreement but concluded that the test was satisfacto distinguishing psychopathic deviates and homosexual tients. It was less successful in his hands in distinguis patients with hysteria and schizophrenia. Modlin[6] te 500 persons to evaluate the device. He found poor relation between the clinical diagnosis and the hig score on the inventory for a given subject, but good correlation when the clinical diagnosis was so among the four highest inventory scores for that per He emphasized that single abnormal categories on test were not so significant as the whole test pr Michael and Buhler[7] stated that the inventory doe replace interviewing and psychiatric judgment.

Various phases of behavior have been studied b test. Hewitt[8] used it in testing 37 members of Alcoh Anonymous. He concluded that deep-seated perso disorders were common among this group, the prominent being the psychopathic deviate, but that holism is also often associated with neurotic, parano schizoid trends. In a study of adaptation of army off Abramson[9] concluded that there was some correl between high scores on the inventory and lack of ad tion.

A relatively small number of case reports deal the use of the test by physicians outside the psych field. Houk,[10] in a series of case reports selected fro inventories in private practice, concluded that it a valuable aid in recognizing neurotic patients and i porting a clinical diagnosis. Henderson and h workers,[11] in an experimental study of dietary restr used the inventory to evaluate changes in emo status in their subjects. They reported changes i neurotic scales on the test when the subjects we deficient diets. These changes were substantiated clinical impressions of observers. Brozek and hi leagues[12] used several devices, including the inve to study personality during experimental vitam deficient diets. No change in personality was recor any tests with patients on partially restricted diet when patients were placed on diets with severe restriction, striking deterioration was shown by al used. Deterioration as shown by personality test ceded metabolic, cardiovascular, and neuro changes. In a study of persons with prolonged sym

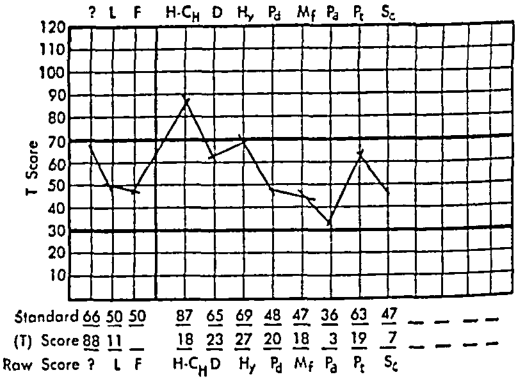

Fig. 2.—Recording sheet showing test scores in nine categor total personality profile.

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ving head injuries Ruesch and Bowman [13] found eatures common to the group: abnormal scores on ieurotic scales of this test and large numbers of e complaints. They concluded that social malad- ent is related to accident proneness and to delayed ery. The inventory was used in conjunction with views by Ruesch and his colleagues [14] to study per- ity in patients who had undergone thyroidectomy. ry had been well tolerated by those with stable per- ities, but recovery from surgery was poor in patients evidence of hysteria or anxiety. Walch and ider,[15] using the test on 550 private patients, found aluable aid in identifying and measuring personality tions and stated that it is helpful in discussing diag- with the patient.

PROCEDURE

our study the test was given to patients in whom it suspected that subconscious stress (neurosis) was ucing symptoms. A much larger number of patients presented diagnostic problems during the period of tudy were not given the test because the diagnosis urosis seemed unlikely. In many of these the symp- were due to nervous tension, but the sources of stress ed clear and the question of deep personality dis- rs was not raised.

ie case histories in the patients given the Minnesota tiphasic Personality Inventory are compared as to the clinical and psychometric diagnoses. The data are ier broken down to show the various neurotic cate- s encountered, the presenting symptoms, and the ces of stress.

DEFINITION OF TERMS

or clarity several of the terms used here must be de- l. The term "reactive neurosis" is used to apply to the nt whose symptoms were due to thoughts or environ- tal situations that were emotionally overstimulating. patients are exemplified by the woman who had ied to fear her mother's asthma over many years and then recognized asthmatic symptoms developing in elf. The ensuing anxiety led to additional distressing otoms. Other patients had experienced symptoms re- ding them of coronary heart disease or other physical ise and had developed additional symptoms from the ety thereby produced. Several patients were living ncongenial environments that were so irritating in ous ways that symptoms resulted. In each of these in- ces the symptoms of nervous origin can be consid- as being largely a reaction to stimuli of which the ent is aware.

he term "neurosis," when used unqualified by the ctive reactive, is applied to nervous or emotional ion arising from subconscious conflict. These patients unable to identify the opposing forces in such conflict, iuse these forces are buried or suppressed.

n evaluating the subjects of the present study several ents were found whose symptoms seemed to arise n inherent hypersusceptibility to minor stimuli. Some hese patients gave evidence of being highstrung and vously overresponsive. Such persons have often been sified as constitutional inferiors or psychopathic in- ors. In the terminology used here persons in this up are called the constitutionally susceptible.

It has long been recognized by physicians that organic disease will in many instances markedly alter the emotional reactivity of the patient. Nine of the patients in this study were believed to fall in this category. In these patients the nervous symptoms prior to the onset of disease were not excessive. The presence of organic disease lowered the threshold of nervous system response, permitting symptoms of emotional origin to arise.

RESULTS

Thirty-four patients, or about 50% of these subjects, had personality profiles that were rather abnormal (Table 1). For 25 of these and in an additional 2 with normal scores the symptoms seemed to relate primarily to subconscious conflict (neurosis). In the remaining nine patients who obtained abnormal scores it was concluded that the symptoms were produced by factors other than or in addition to subconscious conflict. It will be seen from Table 1 that five were included under neurosis with organic disease, two under reactive neurosis, and one each under constitutional susceptibility and organic disease. Fourteen subjects discussed conscious problems or conflicts that seemed adequate to produce symptoms. These patients were classified under reactive neurosis. Twelve of them had normal scores. In nine patients chemical changes (climacteric) or constitutional nervous lability seemed to explain the symptoms. In another nine, organic disease was present that was assumed to have lowered the threshold of nervous reactivity sufficiently to permit development of nervous symptoms. In a few patients (five) an abnormal profile and organic disease coexisted, each being presumably responsible for part of the symptom production. The charts of six patients allowed no satisfactory conclusion as to the cause of nervous symptoms. In these patients the profiles were normal, no stressful factors were evoked, no organic disease was found, and no evidence of constitutional susceptibility was noted. Psychiatric study might have given further insight into these patients but was not carried out.

TABLE 1.—*Diagnosis Compared with Scores of Seventy Patients on the Minnesota Multiphasic Personality Inventory*

Diagnosis	M. M. P. I. Score	
	Normal	Abnormal
Nervous tension from		
Subconscious stress (neurosis)	2	25
Conscious stress (reactive neurosis)	12	2
Constitutional susceptibility	8	1
Organic disease	8	1
Neurosis with organic disease	0	5
Unestablished	6	0
Total	36	34

In the 34 abnormal profiles obtained in this study, the great majority show elevations in the neurotic triad of hypochondriasis, hysteria, and depression, the most frequent abnormality being depression (Table 2). Single categories are recorded as abnormal 70 times. Eleven

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subjects had abnormal scores on only one category, the majority on more than one, 10 patients on three or more. Several patients with high scores in neurotic categories obtained abnormal but less marked deviations on psychotic or behavior categories also. Two patients were unable to complete the test because of mental confusion; one was severely psychotic, the other had intracranial tumor. Psychotic-type profiles were encountered infrequently. Neurotic patients were classified according to the type of symptoms presented (Table 3). Pain of one kind or another was the presenting complaint in by far the largest number, with fatigue and nervous tension occurring frequently. The large majority experienced pain in one or more areas and also complained of general symptoms or other organ symptoms, representing the wide variation in reacting organs, with each person responding to nervous tension in his own particular way.

A smaller number of patients had a diagnosis of reactive nervous states. The threats to which these patients reacted were found to fall into certain categories (Table 4). Some of them had undergone experiences that aroused the suspicion in their minds that they had physical disease of serious import. In these patients the simple explanation that such disease could be disproved afforded satisfactory relief. In others the nervous symptoms arose as reactions to the presence of undesirable physical disease. It is apparent that conditions such as epileptic seizures, rheumatic heart disease, or disabling asthma may produce in many persons insecurity and frustration that result in symptoms. For these persons also, discussion leading to understanding of the relationship between symptoms and the emotional reaction to the disease was all that was required in therapy of the nervous symptoms. A third source of emotional stress in the group with reactive neuroses was environmental. These persons were reacting to situations and to personal relationships that were intolerable but from which they could not escape. They reacted emotionally to definable situations that threatened their existence or their stability.

TABLE 2.—*Abnormal Scores of Thirty-Four Patients by Categories*

Patients showing neurotic scores		27
Hypochondriasis	14	
Depression	17	
Hysteria	16	
Psychasthenia	8	
Total neurotic scores	55	
Patients showing psychotic scores		3
Paranoia	3	
Schizophrenia	2	
Hypomania	4	
Total psychotic scores	9	
Patients with behavior disorder		2
Psychopathic deviate	4	
Masculinity-femininity	2	
Total scores behavior disorder	6	
Unable to complete test		2

Another diagnosis that was made occasionally was that of constitutional overreactivity. It became apparent that certain patients had normal emotional attitudes (with normal scores on the inventory) and were not reacting to overstimulating environments, yet were experiencing symptoms of nervous origin. The climacteric, both female and male, is one obvious p cause of such oversusceptibility to vegetative n reaction. Several charts contained notations reg the physical examination that indicated that the s seemed to have an intense or sensitive personality. I mention has been made in the general medical lit of the fact that human beings are not constructed a nervous reactivity. One may require relatively stimuli to produce responses; another may react slightest stimulus, such high reactivity represen prominent inherent characteristic. It is just as im therapeutically to recognize the skittish person as ognize an organic disease, for only by such reco is that person enabled to adjust his life to the r ments of his nervous system. In four of nine patien a diagnosis of constitutional susceptibility to r reaction, the overreactivity was due to the clim in three to constitutional nervous irritability, and others to an intense personality.

TABLE 3.—*Symptoms of Twenty-Seven Neurotic Pa*

Patients with physiological overactivity of one or more orga		
Pain		19
Abdominal	8	
Skeletal	8	
Head	2	
Throat	1	
Palpitation		
Constipation		2
Weight loss		2
Fever		2
Dyspnea		2
Itching, blinking, blushing, belching, body odor, nausea, Raynaud's phenomenon		2
		1
Patients with general physiological overactivity		
Fatigue		9
Nervous tension		8
Weakness		2
Sense of struggle, malaise		1
Patients complaining of mood variation		
Depression		6
Anxious, distractible, self-conscious		1

In the evaluation of nine patients (Table 5) considered that symptoms of nervous origin r from the lowered threshold of reactivity produ organic disease. Two of these patients had intra tumors, three had disorders of the circulatory s and three patients had arthritis, duodenal ulce respiratory tract infection, respectively. Patient polycythemia notoriously are subject to vague g malaise. The swollen aching leg of the patient wit bitis may be a constant source of nervous irritation grade chronic infections, such as brucellosis and tu losis, recognizably lower susceptibility to em

TABLE 4.—*Reactive Nervous States and Sources of in Fourteen Patients*

Patients with unacceptable physical disease	
Epilepsy	Coronary disease
Rheumatic heart	Multiple minor abnormalities
Asthma	
Patients falsely believing themselves subject to physical diseas	
Fear of cardiac disease (2)	
Fear of hyperthyroidism	
Patients living with stress-producing problems or environment	
Excessive responsibility	Wayward son
Excessive hours of work	*Death of parents*
Unwanted child	Uncongenial work

ctivity. Brain tumor, through the constant aggravating d pain as well as by direct tissue pressure or infiltra- ı, is well recognized as commonly producing symp- ıs of nervous tension. As for hypertension, peptic er, and arthritis, there is controversy as to whether nervous symptoms are secondary to the disease or disease is due to a disturbed emotional state. Regard- of origin, nervous symptoms are commonly observed hese patients.

n the five patients revealing both organic disease and abnormal score, the presence of neurosis in addition he physical disorder would probably have gone un- ognized. The nervous symptoms would have been sidered a part of or secondary to the disease state, l no further therapeutic efforts would have been made. e findings of an abnormal profile caused these patients be referred for psychiatric interview and treatment. Two patients who were regarded as neurotic after chiatric interview showed normal scores. These rep- ent obvious failures of the test to record the neurotic tudes. Four patients with abnormal scores were, in final evaluation, considered to have nervous symp- ıs from causes other than neurotic attitudes. Two of se were thought to be reacting to environmental ss, one to be constitutionally susceptible, and one have nervous symptoms from organic disease. Psy- ıtric interviews were not conducted with these pa- ıts, as it was not considered essential to therapy. ıfirmation or refutation of the test results is not there- e available in these patients.

ıLE 5.—*Organic Disease Responsible for Nervous Symptoms in Nine Patients*

Nervous system disease (Brain tumor 2, uncinate fits 1)...	3
Circulatory system disease (Hypertension, polycythemia, phlebitis)	3
Arthritis	1
Duodenal ulcer....	1
Infection	1

COMMENT

n the evaluation of the causes of symptoms presented a patient to the physician, much reliance has been ced on what is commonly spoken of as the "art of dicine." Step by step the art of earlier generations of ysicians has been replaced by the science of medicine, the advantage of both the patient and the physician. recent years understanding of the psychological ects of disease has been developing rapidly. This lerstanding has reached the point at which it is pos- le to develop an objective approach to the analysis personality deviations.

The advantage to the physician of an ability to evalu- personality traits is obvious. Functional symptoms quently simulate organic disease. Many abnormal per- ıalities are extremely difficult for those untrained in ychiatric methods to recognize. Several patients with rmal scores were believed at first examination to be ffering from a neurosis. With further study of these tients we have learned of environmental circumstances ıich are, for that patient, unbearable. The patient with normal emotional balance who has symptoms as a sult of conflict with the environment is a patient whom ery physician, equipped only with common sense and understanding, can advise. The patient with a pronounced emotional imbalance due to conflict within the personality is usually beyond the ability of the physician to evaluate, much less to manage with benefit to the patient. Such inner conflict arises frequently from failure of emotional growth at various stages of personality development. Much psychiatric insight is required to evaluate such growth failures. The day has long since gone when the well-intentioned physician could, when a physical examination has given normal results, tell the patient to "go home and forget it."

As a result of this study my diagnostic evaluation of psychosomatic states has been greatly improved. In patients whose complaints would previously have been diagnosed vaguely as functional disorders the origin of nervous tension can now be recognized frequently. In patients with abnormal scores the physician is given strong supporting evidence for a diagnosis of neurosis or psychosis. In patients obtaining normal scores the physician will be encouraged to seek other causes for the symptoms, in additional study for organic disease, in further evaluation of the patient's ideological stresses, or in estimation of his inherent susceptibility to psychosomatic reaction. This has given rise to better sorting of patients for psychiatric reference and better insight into the simpler psychosomatic problems by patient and physician, leading to more satisfactory results in therapy.

During the collection of these data I was surprised to see the paucity of psychotic scores. Other clinicians have since reported similar impressions. The psychotic patient does not seek out the physician nor does he experience the distressing physical manifestations presented by the neurotic.

Perhaps the greatest advantage of a psychometric device to the physician untrained in psychological medicine is the fact that just as laboratory data simplify the diagnosis of other diseases, so may a psychometric procedure simplify the diagnosis of a psychogenic state. The laboratory data themselves do not diminish the need for clinical judgment but provide objective data on which judgment may be based. The Minnesota Multiphasic Personality Inventory similarly will not of itself diagnose a patient's psychological condition, but it will relate the patient's personality characteristics to clinical psychiatric entities, giving the physician additional data on which to base a diagnosis. To approach an accuracy in the diagnosis of a neurosis comparable to that provided by the test would require considerable special training in psychiatry and at least an hour's searching conversation with every patient.

SUMMARY AND CONCLUSIONS

Seventy patients from a private medical practice whose symptoms suggested neurotic illness were given the Minnesota Multiphasic Personality Inventory to evaluate the use of this device as an aid in diagnosis. The scores of these patients were tabulated according to final clinical evaluation. The original impression of neurosis was confirmed in 27 patients, was present in addition to organic disease in 5, and was denied in 38. In the latter group the causes of nervous symptoms were found in stressful environments, constitutional susceptibilities, or lowered nervous thresholds produced by organic disease.

Further data are given on the scores of the 27 patients with neurosis. The scores were abnormal mainly in the categories of depression, hypochondriasis, or hysteria in various combinations. Patients with psychosomatic symptoms are seldom psychotic. The commonest symptom of neurosis in these patients was pain, with fatigue and nervous tension rather common. A very wide range of organ reactivity is noted, each patient responding to emotional stimulation with the reaction of particular organs characteristic of him.

For those patients whose symptoms are produ subconscious stress (neurosis), psychiatry offers a u adjunct in treatment. For patients whose nervous sy toms are not of this type, the general physician's i will usually be sufficient. The Minnesota Multip Personality Inventory affords the diagnostician a to useful in the diagnosis of neurosis as laboratory ai the diagnosis of organic disease.

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CONTROLLED VERSUS FREE DIET MANAGEMENT OF DIABETES

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and
Alexander Marble, M.D., Boston

The type of treatment and the degree of control of the diabetic state most desirable for optimal management of youthful patients with severe diabetes has long been the subject of much debate. That the duration of diabetes is an important factor in determining the incidence and severity of degenerative vascular lesions among diabetic patients is a well accepted fact. However, our experience has led us to believe that continuous, aggressive treatment directed toward maintaining physiologic conditions, including normal levels of blood sugar, is of the greatest importance in reducing the incidence and severity of degenerative complications.

Several recent articles have advocated a regimen of management which by our standards falls far short of being adequate therapy.[1] These plans of treatment, in general, allow a more or less free selection of food and disregard of hyperglycemia and glycosuria as long as ank symptoms and acidosis are absent. Many factors ust of necessity be considered in any over-all evaluation of the status of control of any individual patient. It is our opinion that "ideal" control of diabetes implies that a measured diet providing adequate amounts of vitamins, minerals, and calories derived from a correct proportion of carbohydrate, protein, and fat, has been so well utilized by means of an adequate insulin effect that blood and urine tests made regularly are invariably normal.

During a study recently completed,[2] the correlation between the degree of control maintained and the incidence and severity of degenerative vascular complications was determined in more than 300 youthful patients with diabetes of long duration who were recalled to the office or the hospital for observation and examination. Analysis of the results of this study has supplied support fo concept that persistent aggressive treatment of dia will definitely postpone or prevent vascular comp tions in these youthful patients. The present paper sents a further analysis of the data in these patients special reference to their over-all type of managem

We have divided 221 of these patients into groups, according to the type of treatment and the d of control that each patient followed in the manag of his diabetes. All patients who had had diabetic on one or more occasions, regardless of the cause type of management followed at other times, were sidered as a group illustrating poor control ar referred to hereafter as the "coma" group. Wi exceptions, the patients in this group had had c ently poor control of diabetes. All patients who a followed the type of careful treatment recommen them by us and our associates were similarly cons together as a group representing "controlled" trea The third group comprised those patients who, o own volition, had followed a "free-diet" regimen of agement similar to that advocated by Tolstoi and None of the 100 cases included in this third grou ever been in coma or severe acidosis as determin a review of their clinical and laboratory records co years of office and hospital visits. All were taking i in amounts varying from 30 to 120 units daily an following a free-diet type of management, without lar examinations for sugar in the urine or blood. In patients hyperglycemia and glycosuria were usually ent whenever occasional tests were made. Each three management groups was further subdivid cording to the duration of the diabetes into 10 year group, 15 to 20-year group, and 21 to 3 group.

After establishing the above-mentioned grou sought to determine in this series of patients the inc and severity of the two most commonly observed lar complications of diabetes which can be objec evaluated, retinopathy and calcification of peri arteries. Other degenerative changes were observe considerable frequency in many of these same pa but the accurate interpretation and evaluation of complications (except for renal involvement) wa

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From the George F. Baker Clinic, Elliott P. Joslin, M.D., Medical Director, New England Deaconess Hospital.

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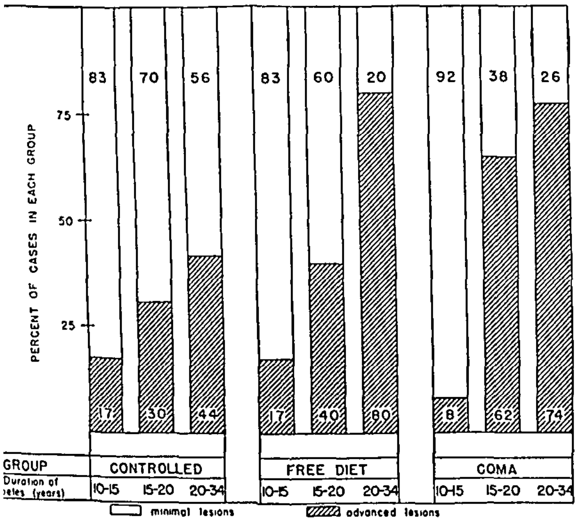
and the changes were therefore not easily subjected atistical analysis. Diabetic retinopathy was found to ne of the earliest degenerative lesions constantly rved in these young diabetic patients. The various tive findings of certified ophthalmologists after uscopic examinations were classified as follows:

rmal: Normal fundi with no hemorrhages, exudates or sis.
ade I: Few tiny punctate hemorrhages, no exudates.
ade II: Many punctate hemorrhages, few small hard or xudates.
ade III: Many punctate and some large superficial hemor- s, many large and small exudates.
ade IV: Most advanced retinitis with new vessel forma- and proliferation (retinitis proliferans).

ification within the walls of blood vessels often t demonstrable by roentgenography until after other ifestations of vascular degeneration are observed. n seen, however, this finding affords definite objec- evidence of blood vessel involvement by the degen- ve process. The roentgenograms of all these patients evaluated and graded (normal to Grade IV) accord- o degree of vascular calcification observed in films e aorta and of the pelvis and legs.

OBSERVATIONS

he incidence and extent of vascular calcification is elated in Figure 1 with the type of management fol- ed and the duration of diabetes. It can be seen that r 20 or more years, 74% of the patients in the coma p showed calcification of advanced degree and 80% ose in the free-diet group showed advanced lesions. he other hand, among those in the controlled group was a strikingly lower incidence of advanced ges (44%). Within each of the three groups there an increasing incidence of vascular calcification with asing duration of diabetes.



. 1.—Correlation of the incidence and severity of vascular calcifica- with three types of management of diabetes.

n Figure 2 the incidence and severity (minimal or anced) of retinopathy are shown in the three groups patients. Within each group separate tabulation is de to show the effect of duration of diabetes. It will oted that after 15 years of diabetes there was a higher incidence of retinal lesions in patients in the coma and free diet groups than in those in the controlled group. Except for the controlled group, with increasing duration of diabetes there was a corresponding increase in degree of retinitis.

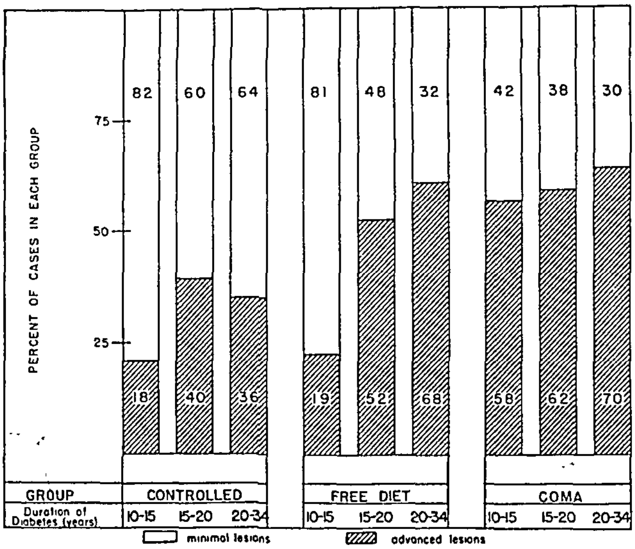


Fig. 2.—Correlation of the incidence and severity of retinal lesions with three types of management of diabetes.

Joint Correlation of Retinopathy and Vascular Calcification with Type of Management.—In analysis of the data just presented it became evident that in certain patients retinal lesions were minimal or absent, although definite vascular calcification was observed; in other patients, the reverse was seen. It appeared that more accurate tabulation and fairer comparison of the three groups of patients could be made if the patients were grouped according to the consistency of the degenerative lesions observed. Three groups were established: (*a*) "Minimal," which included all patients with retinopathy or vascular calcification of no greater severity than Grade I; (*b*) "Advanced," which included those with either Grade IV retinopathy or Grade IV calcification, or with both complications of Grade II or greater; and (*c*) "Intermediate," which comprised patients with inconsistent severity of lesions. The results of this tabulation are shown in Figure 3.

It will be noted that the data in Figure 3 are presented somewhat differently from those in the two preceding figures. The basic arrangement is according to duration of diabetes with three groups recognized: 10 to 15-year, 15 to 20-year, and 20 to 34-year group. Within each group the extent of retinopathy and calcification jointly present is tabulated according to the three types of management previously discussed (coma, free-diet, and controlled).

Study of Figure 3 reveals the following: (*a*) Within the 10 to 15-year and 15 to 20-year periods, there was no significant difference in the incidence of advanced degenerative lesions among the three management groups. However, in the 20 to 34-year period a significantly higher incidence of advanced lesions was seen among the patients with poorer control. (*b*) Among the patients with diabetes of 20 to 34 years' duration, advanced lesions in both the eyes and blood vessels were observed more than twice as frequently in the coma and free-diet groups as in the controlled group. Also, in the group with diabetes of 20 or more years' duration, only 7% of patients managed by a free-diet regimen had minimal vascular complications, whereas 41% with controlled diabetes showed only minimal lesions. (*c*) In the coma and free-diet groups, the incidence of advanced lesions increased progressively and strikingly with increasing duration of diabetes, whereas in the controlled group there was *no increase* from the 15 to 20-year to the 20 to 34-year period. Fifteen per cent of the patients in the coma group of 20 to 34 years' duration had minimal vascular lesions as compared with 7% in the free-diet group (Fig. 3). Although the number of patients concerned is small and the difference possibly not significant, it may reflect the fact that a few of the patients included in the coma group had been in coma on only one occasion while the remainder of the time they had conscientiously attempted to follow the careful type of treatment recommended to them and had been fairly well controlled for years; these now showed minimal, if any, vascular degeneration. This represents a vastly different situation from that of patients who maintained a persistent hyperglycemia and glycosuria and therefore a constantly disturbed metabolism under the free-diet regimen of management.

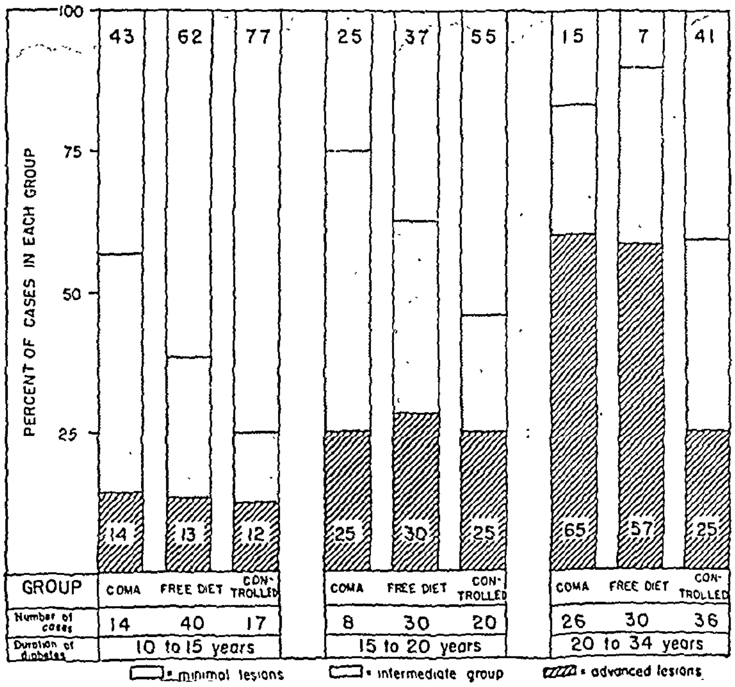


Fig. 3.—Joint correlation of the incidence and severity of retinopathy and vascular calcification with three types of management of diabetes.

No patient who followed a free-diet type of management had both normal retinas and absence of calcified blood vessels after 20 or more years of diabetes.

Relationship of Nephropathy to Type of Management.—In addition to the complications of retinopathy and vascular calcification analyzed above, the incidence and severity of renal disease occurring in these same
were noted with particular attention directed to
tionship between this complication and the type
agement of diabetes. Sixty-two patients had clinical
festations of diabetic nephropathy. A study of this
has been reported recently.[3] None of the 73
who had consistently maintained a satisfactory
control of diabetes was observed to have manifest
of nephropathy. Only 13 (20%) of the 62 patients
renal disease had made any attempt at control
betes. The remaining 49 patients (80%), had fol
a free-diet form of treatment or had been in co
one or more occasions. The importance of this
lar complication of diabetes must not be underestin
since it represents the chief cause of death in mo
50% of young patients with diabetes of long dur

COMMENT

The above observations indicate the importa
continuous controlled treatment of diabetes, parti
among the ever-increasing number of patients
leading useful lives after more than 20 years of di
It is in the management of these young patient
onset of diabetes early in life that every means a
should be employed to decrease the incidence and
ity of degenerative vascular complications. Thes
plications are now responsible for more deat
debility than all other causes in this group of pati

Regardless of the type of management, 10 to
of diabetes are usually required for the develop
significant degenerative lesions.[5] Therefore, it
among patients who have had diabetes for mo
15 or 20 years that a true picture of the relation
tween the type of management and the incide
severity of degenerative vascular lesions can be o
Consequently, in any study to determine the
effects of various types of management, attention
be directed to those patients who have had diab
20 years or more.

Attention to control of diabetes should begin ea
aggressive treatment should be maintained conti
from the time the diagnosis is first made.

SUMMARY

Two hundred twenty-one young patients with
diabetes of 10 to 34 years' duration, with onset
18 months and 30 years of age, were studied to
mine the correlation between the type of mana
and the incidence and severity of the two most co
observed degenerative vascular complications (
athy and arterial calcification). Comparisons we
between the vascular status of three groups of p
(1) a "coma" group made up of those who had
or more attacks of diabetic coma, (2) those w
followed a "free-diet" type of management, an
"controlled" group comprising those who had
tained careful regulation of their diabetes. The
parisons revealed the following:

1. An increase in the frequency and severity of
erative vascular complications of diabetes comme
with increases in duration of the disease occurre

2. For any given duration of diabetes, there
significantly lower incidence of advanced dege
changes among those patients who had maintaine

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[3] Wilson, J. L.; Root, H. F., and Marble, A.: Diabetic Nephropathy, New England J. Med. 245: 513 (Oct. 4) 1951.

[4] Joslin, E. P., and Wilson, J. L.: Lessons For Future Treatment from 472 Fatalities in Diabetic Children, Brit. M. J. 2: 1293 (Dec. 9) 1950.

[5] Root, H. F.; Sinden, R. H., and Zanca, R.: Factors in the Rate of Development of Vascular Lesions in the Kidneys, Retinae, and Peripheral Vessels of the Youthful Diabetic, Am. J. Digest. Dis. 17: 179 (June) 1950. White, P., and Waskow, E.: Arteriosclerosis in Childhood Diabetes, Proc. Am. Diabetes A. 8: 140, 1948. Root, H. F.: Diabetes and Vascular Disease in Youth, Am. J. M. Sc. 217: 545 (May) 1949.

ntrol of their diabetes. Also, for each ensuing decade duration of diabetes, the effects of differences in type management became more significant.

3. No patient who followed a free-diet regimen of anagement showed both normal retinas and absence of lcified blood vessels after 20 or more years of dia- tes, whereas 8% of those in the controlled group did.

4. After 20 to 34 years of diabetes, more than 57% patients in the free-diet group showed advanced degenerative changes, whereas only 25% of patients in the controlled group had such lesions.

These observations definitely support the concept that continuous, aggressive treatment, directed toward maintenance of physiologic conditions, is a better form of management of diabetes than the free-diet plan, which permits a constantly disturbed metabolic state, reflected in persistent hyperglycemia and glycosuria.

81 Bay State Road.

CHRONIC STRESS AND PEPTIC ULCER

I. EFFECT OF CORTICOTROPIN (ACTH) AND CORTISONE ON GASTRIC SECRETION

Seymour J. Gray, M.D., Ph.D., John A. Benson Jr., M.D., Robert W. Reifenstein, M.D.
and
Howard M. Spiro, M.D., Boston

Since the advent of corticotropin (ACTH) therapy, a mber of reports have appeared describing massive gas- ic hemorrhage or the development, reactivation, or rforation of peptic ulcers during prolonged cortico- opin administration.

The purpose of this communication is to present evi- ence that the chronic administration of corticotropin roduces an increase in gastric acidity and gastric pepsin ith subsequent peptic ulceration, perforation, or hem- rrhage. The studies to be presented indicate, moreover, at chronic stress affects the stomach by a hormonal echanism which is mediated through the adrenal gland.

It is well established that chronic physical and emo- onal stress leads to the release of corticotropin by the ituitary and that corticotropin in turn stimulates the drenal cortex to secrete a variety of steroid hormones cluding cortisone and closely related compounds.[1] The peated administration of corticotropin over a period time simulates chronic stress, since it elicits many of e same responses as those of sustained alarm.[2]

The occurrence of gastrointestinal ulceration is an in- gral and prominent part of the alarm reaction in re- onse to a number of stress factors such as nervous and notional stress, temperature changes, muscular exer- on and fatigue, infections, burns, anoxia, shock, and tracranial lesions.[3] All of these alarming stimuli may e associated with an increased incidence of gastro- testinal ulceration, perforation, or hemorrhage.

The relationship of prolonged emotional stress and larm to gastroduodenal ulceration and chronic peptic lcer is well documented.[4] The significantly increased cidence of perforated peptic ulcers in England and weden during the heavy air raids[5] and the increased ncidence of peptic ulcer in England, Germany, and witzerland during World War II[6] are ample evidence f the role of stress in gastrointestinal ulceration.

The pathway by which emotions and other forms of tress are transmitted to the stomach is generally con- idered to be neurogenic by way of the vagus nerve. ystemic stress and emotional stimuli such as rage, fear, nd anxiety are expressed, under cortical control, through he hypothalamus and relayed to the vagal centers by eural pathways. Stimulation or excitation along the course of the fiber tracts from the anterior hypothalamus to the vagal centers produces gastric erosions, perforations, or ulcers accompanied with hypersecretion and hyperchlorhydria.[7]

The hypothalamus, however, may also play an essential hormonal role in the response to stress which is independent of nervous pathways and forms a key link in the release of corticotropin by the pituitary. Recent studies indicate that in response to emotional and systemic stress the cells of the anterior hypothalamus secrete a humoral substance which stimulates the pituitary to release corticotropin.[8]

The studies to be presented indicate that emotional stress and anxiety may also induce gastrointestinal ulcer-

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From the Medical Clinic, Peter Bent Brigham Hospital, the West Roxbury Veterans Administration Hospital, and the Department of Medicine and the Biophysical Laboratory, Harvard Medical School.

Dr. Thomas A. Warthin of the West Roxbury Veterans Administration Hospital and Dr. Samuel P. Hicks, Peter Bent Brigham Hospital, cooperated with the authors during the course of these studies.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] Selye, H.: General Adaptation Syndrome and Diseases of Adaptation, J. Clin. Endocrinol. 6: 117, 1946.

[2] (*a*) Selye, H.: Physiology and Pathology of Exposure to Stress: Treatise Based on Concepts of General-Adaptation, Montreal, Acta, Inc., 1950. (*b*) Dalton, A. J., and Selye, H.: Blood Picture During Alarm Reaction, Folia Haemat. 62: 397, 1939. (*c*) Long, C. N. H.: Conditions Associated with Secretion of Adrenal Cortex, Federation Proc. 6: 461, 1947.

[3] Selye, H.:[2a] pp. 688-697.

[4] Grinker, R. R., and Spiegel, J. P.: Men Under Stress, Philadelphia, The Blakiston Company, 1945. Ivy, A. C., and others: Peptic Ulcer, Philadelphia, The Blakiston Company, 1950.

[5] Spicer, C. C.; Stewart, D. N., and Winser, D. M. deR.: Perforated Peptic Ulcer Period of Heavy Air-Raids, Lancet 1: 14, 1944. Petrén, G.: Till Frågan om mag- och duodenalsårets frekvens i Sverige under Krigsåren, Nord. Med. 26: 859, 1945. Selye, H.: Perforated Peptic Ulcer During Air-Raid, Lancet 1: 252, 1943.

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[7] Cushing, H.: Peptic Ulcers and Interbrain, Surg., Gynec. & Obst. 55: 1, 1932.

[8] Hume, D. M.: Role of Hypothalamus in Pituitary-Adrenal Cortical Response to Stress, J. Clin. Invest. 28: 790, 1949.

ation by a hormonal mechanism through the hypothalamic-pituitary-adrenal-gastric axis (Fig. 1).

The reported cases of ulcer production, perforation, or hemorrhage during corticotropin therapy in most instances occurred after the "chronic stress" of corticotropin administration for seven or more days. Beck and his associates reported an acute perforation of a duodenal ulcer occurring after seven days of corticotropin therapy (100 mg. daily) in a patient with previously negative x-rays of the stomach. Generalized peritonitis associated with severe retrosternal burning, nausea, and vomiting occurred in a second patient after the administration of 150 mg. of corticotropin daily for 20 days.[9] Heller and associates observed two patients with perforation of a duodenal ulcer following corticotropin therapy. Neither of these patients had any past history of gastrointestinal symptoms or disease. The first patient received 225 mg. of cortisone daily for five days approximately two weeks before admission to the hospital and then suffered a duodenal perforation after receiving 60 mg. of corticotropin daily for two and one-half additional days. The second patient received 3,100 mg. of cortisone over a period of 16 days before her ulcer perforated.[10] Fli also observed a perforated peptic ulcer in a patient wi no antecedent history after chronic corticotropin the apy.[11] Warren noted massive gastric hemorrhage in a arthritic patient with no previous ulcer history wh received 1,200 mg. of cortisone over a period of ni days.[12] Habif, Hare, and Glaser reported an acute perforation of a duodenal ulcer in a previously asymptoma patient who received 80 mg. of corticotropin daily for a total of 29 days.[13]

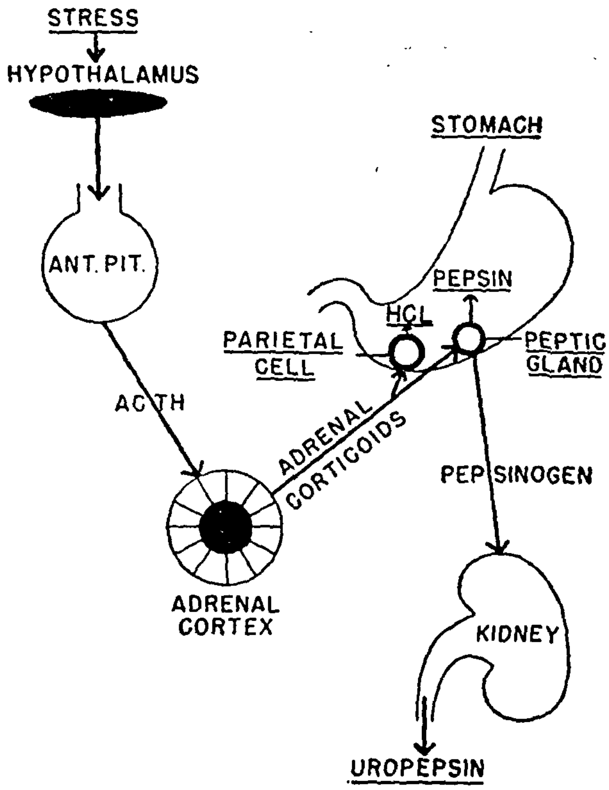

Fig. 1.—Hormonal pathways by which emotional and physical stress may affect the stomach, resulting in an increased production of gastric hydrochloric acid and pepsin.

Although it is difficult to be certain, there is no evidence that any of the above patients had a duodenal ulce prior to hormone therapy and one patient had a previously negative x-ray of the stomach.

Activation of a previously existing peptic ulcer wa reported by Smyth in three instances. The ulcer of on patient had been healed and quiescent for nine yea but perforated after he received 75 mg. of corticotrop daily for five days. Autopsy revealed acute and chron ulceration with perforation of the duodenum associat with acute and chronic inflammatory reaction. Reactiv tion of ulcer symptoms associated with sudden seve pain and melena was observed after 22 days of cortic tropin therapy (2.84 gm.) in a patient who had be asymptomatic since the demonstration of an ulcer cra six months previously. A third patient experienced seve excruciating pain four days after corticotropin thera (100 mg. daily). This patient had a gastric ulcer a presented evidence of localized peritoneal reaction bef the hormone was discontinued.[14] In two patients wit previous history of peptic ulcer deeply penetrating ulc requiring surgical intervention developed after cortis therapy.[11] A fatal massive gastric hemorrhage occur in a patient with meningitis who received 1,700 mg cortisone over a period of seven days. Autopsy revea that the hemorrhage originated from an exacerbatio an old healed duodenal ulcer.[12]

METHODS

Corticotropin was administered intramuscularly doses of 100 to 160 mg. daily for a period of 3 to 4 we to six patients with essentially normal stomachs, one tient with a gastric ulcer, and one patient with a hea duodenal ulcer.

Three hours after a light evening meal a Levin t was inserted into the stomach and continuous 12-h aspiration was instituted in accordance with the met described by Levin and others.[15] On the following mo ing the tube was left in place and the stomach aspira by continuous manual suction. The first specimen discarded and then three to five consecutive 15-mi aspirations were obtained with constant suction follow the method of Bloomfield and others.[16] Consistent umes of gastric secretion were obtained during th serial 15-minute aspirations. Identical conditions alw prevailed in subsequent aspirations during corticotro therapy. The diet was kept constant and whenever p sible the aspirations were performed by the same op ator. During the aspiration the fasting patient recei nothing by mouth and no belladonna alkaloids or se tives were administered. The end of the tube was p tioned roughly in the lower fundus. The collected j was immediately placed in an ice bath. The studies w restricted only to patients who tolerated intubation w

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[9] Beck, J. C.; Browne, J. S. L.; Johnson, L. G.; Kennedy, B. J., and MacKenzie, D. W.: Occurrence of Peritonitis During ACTH Administration, Canad. M. A. J. **62**: 423, 1950.

[10] Lubin, R. I.; Misbach, W. D.; Zemke, E. M.; Hammarsten, J. F., and Heller, B. I.: Acute Perforation of Duodenal Ulcer During ACTH and Cortisone Therapy, to be published.

[11] Flink, E. B.: Personal communication to the authors.

[12] Warren, L.: Personal communication to the authors.

[13] Habif, D. V.; Hare, C. C., and Glaser, G. H.: Perforated Duodenal Ulcer Associated with Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **144**: 996 (Nov. 18) 1950.

[14] Smyth, G. A.: Activation of Peptic Ulcer During Pituitary Adrenocorticotrophic Hormone Therapy: Report of 3 Cases, J. A. M. A. **145**: 474 (Feb. 17) 1951.

[15] Levin, E.; Kirsner, J. B.; Palmer, W. L., and Butler, C.: Variability and Periodicity of Nocturnal Gastric Secretion in Normal Individuals, Gastroenterology **10**: 939, 1948.

[16] Bloomfield, A. L.; Chen, C. K., and French, L. R.: Basal Gastric Secretion as Clinical Test of Gastric Function with Special Reference to Peptic Ulcer, J. Clin. Invest. **19**: 863, 1940.

The continuous 12-hour nocturnal gastric secretion d the basal morning fasting secretions were obtained on least two occasions before corticotropin therapy was stituted in order to establish a base line control. The idies were repeated at weekly intervals during the ministration of corticotropin and were again repeated veral weeks after corticotropin had been discontinued order to establish the level of secretion during the covery period. The adrenal response to stimulation was nfirmed by eosinophil counts and 17-ketosteroid excre- n studies. The volume, consistency, and blood and le content of each specimen were recorded. The pH is determined with the glass electrode, and free hydro- lloric acid and total acidity were determined by titration ith 0.1 N solution of sodium hydroxide, using Töpfer's agent and phenolphthalein as indicators. Pepsin was termined by the method of Bucher, Grossman, and y.[17]

BLE 1.—*Effect of Corticotropin (ACTH) on Gastric Acidity**

tient	Average Values	Control Period 1	Control Period 2	No. of Days ACTH Administered 7	No. of Days ACTH Administered 14	No. of Days ACTH Administered 21	Recovery Period 1	Recovery Period 2
. A.	15 min. volume (cc.)	17	..	20	18	..	..	..
	Free HCl (c. u.)	18	..	55	30	..	..	..
	Free HCl/hr. (mg.)	44	..	162	79	..	..	..
. E.	15 min. volume (cc.)	22	14	27	18	18	..	..
	Free HCl (c. u.)	20	32	60	78	70	..	..
	Free HCl/hr. (mg.)	65	65	236	204	183	..	..
. D.	15 min. volume (cc.)	20	22	21	30	31	32	32
	Free HCl (c. u.)	20	15	28	18	73	15	15
	Free HCl/hr. (mg.)	59	48	85	79	330	70	48
. I.	15 min. volume (cc.)	21	..	20	..	..	..	..
	Free HCl (c. u.)	28	..	80	..	..	..	..
	Free HCl/hr. (mg.)	85	..	234	..	..	..	..
. N.	15 min. volume (cc.)	21	27	..	25	27	17	..
	Free HCl (c. u.)	20	32	..	59	86	21	..
	Free HCl/hr. (mg.)	61	126	..	220	332	51	..
. U.	15 min. volume (cc.)	17	20	32	33	35	30	27
	Free HCl (c. u.)	30	47	48	58	60	45	17
	Free HCl/hr. (mg.)	74	136	221	280	300	197	64
. F.	15 min. volume (cc.)	10	15	..	24	..	27	..
	Free HCl (c. u.)	0	7	..	70	..	0	..
	Free HCl/hr. (mg.)	0	15	..	242	..	0	..

Continuous 15-minute serial aspirations for one hour (basal secretion).

Coincidental 24-hour uropepsin excretions were deter- ined by a modification of the method described by ucher, Mirsky, and Anson.[18] Urine specimens were ollected on frequent occasions during the period of rticotropin administration and for approximately a eek prior to and following corticotropin therapy. The fect of cortisone on uropepsin excretion was determined four subjects with normal stomachs who received 200 500 mg. of cortisone daily for 4 to 18 days.

RESULTS

Effect of Corticotropin upon Gastric Acidity.—The ontinued administration of 100 to 160 mg. of cortico- opin daily for a period of 7 to 21 days produced a arked increase in the basal gastric secretion of hydro- hloric acid (Table 1) as manifested by an increase in e average free and total acidity in clinical units, output f free hydrochloric acid in milligrams per hour, and a ecrease in the pH of the gastric juice.

The clinical units (c. u.) of free hydrochloric acid increased 100 to 330% with a mean increase of 208% in the basal fasting secretion obtained by continuous aspiration of serial 15-minute samples. Total hourly secretion of free hydrochloric acid, expressed as milligrams, increased 175 to 510% with a mean rise of 270% during the administration of corticotropin. The increase in gastric acidity was delayed in one patient (O. D.) until 21 days of corticotropin administration, while in others the acidity rose within the first week. A marked increase was noted within seven days in patients J. A. and H. E. (Table 1).

The dramatic increase in gastric acidity observed during corticotropin administration and the fall to control levels after corticotropin was discontinued is demonstrated in Figure 2. The increase in gastric acidity represents a true increase in acid concentration, since the volume of gastric secretion did not rise significantly during corticotropin administration. One patient (B. F.) had 0 to 7 units on two occasions prior to corticotropin administration. After 14 days, the mean free acidity rose to 70 units with an hourly secretion of 242 mg. free hydrochloric acid. Three weeks after corticotropin therapy was discontinued, the free acidity fell to 0. The gastric acidity returned to precorticotropin control levels in all instances after discontinuation of corticotropin therapy (Table 1).

The nocturnal 12-hour gastric secretion similarly demonstrated a profound increase in free acidity within 7 to 21 days of continuous corticotropin administration (Table 2). The mean rise in clinical units was 162% with an average increase in milligrams of free acid of 235%. The volume of the 12-hour aspirations did not increase appreciably during corticotropin therapy except in one patient with a healed duodenal ulcer (C. U.). The gastric juice volume and concentration of acidity were both increased considerably in this patient (Fig. 3).

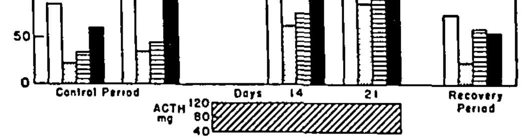

Fig. 2.—Effect of corticotropin (ACTH) on gastric acidity (basal secretion) in one patient (I. N.), demonstrating the increase in free hydrochloric acid during corticotropin administration.

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When corticotropin was discontinued, the 12-hour secretion of acid returned to control levels (Table 2).

Effect of Corticotropin on Gastric Pepsin.—A similarly significant increase in the concentration of gastric juice pepsin was observed in the serial 15-minute basal aspirations during 7 to 21 days of continuous corticotropin administration (Table 3). The mean pepsin concentration in five of the seven patients studied rose 182% and the pepsin output per hour increased 209% but, after discontinuation of corticotropin, both values returned to the precorticotropin control levels.

TABLE 2.—*Effect of Corticotropin (ACTH) on Gastric Acidity**

Patient	Average Values	Control Period		No. of Days ACTH Administered		
				7	14	21
I. N.	Volume (cc.)	396	303	...	364	345
	Average free HCl (clinical units)	10	32	...	12	49
	Free HCl secreted per 12 hours (mg.)	142	352	...	165	612
C. U.	Volume (cc.)	880	810	1,260	1,630	1,650
	Average free HCl (clinical units)	41	24	32	78	91
	Free HCl secreted per 12 hours (mg.)	1,300	700	1,474	4,600	5,500
H. E.	Volume (cc.)	368	290	423	722	475
	Average free HCl (clinical units)	36	19	64	75	52
	Free HCl secreted per 12 hours (mg.)	484	198	972	1,970	890

* Twelve-hour nocturnal aspiration.

TABLE 3.—*Effect of Corticotropin (ACTH) on Gastric Pepsin**

Patient	Average Values	Control Period		No. of Days ACTH Administered		
		1	2	7	14	21
J. A.	15 min. volume (cc.)	17	...	20	18	...
	Peptic units/cc	272	...	472	779	...
	Peptic units/hr	18,500	...	37,760	56,000	...
H. E.	15 min. volume (cc.)	18	...	27	18	18
	Peptic units/cc	512	...	581	482	471
	Peptic units/hr	36,800	...	63,000	34,800	39,400
R. I.	15 min. volume (cc.)	21	21	20	...	...
	Peptic units/cc	572	639	1,500	...	...
	Peptic units/hr	48,000	53,500	120,000	...	...
O. D.	15 min. volume (cc.)	20	22	21	30	31
	Peptic units/cc	150	177	847	577	458
	Peptic units/hr	12,000	15,600	71,000	69,300	57,000
I. N.	15 min. volume (cc.)	21	27	...	25	27
	Peptic units/cc	466	274	...	997	716
	Peptic units/hr	39,200	29,600	...	99,700	77,500
C. U.	15 min. volume (cc.)	17	20	32	33	35
	Peptic units/cc	341	319	339	264	235
	Peptic units/hr	23,100	25,520	43,100	35,000	33,000
B. F.	15 min. volume (cc.)	10	15	...	24	...
	Peptic units/cc	0	232	...	431	...
	Peptic units/hr	0	13,900	...	41,500	...

* Continuous 15-minute serial aspirations (basal secretion).

It is of considerable interest that there was no significant rise in pepsin concentration in two patients (H. E. and C. U.) in spite of a marked increase in the gastric acidity (186 to 263%) in both instances. The hourly output of pepsin rose in the peptic ulcer patient (C. U.) because of an increase in the volume of gastric secretion during corticotropin administration (Table 3).

The 12-hour continuous nocturnal secretion re
a 168% increase in the mean total pepsin output o
12-hour period. Although the volume of the 1
aspirations increased approximately 100% duri
administration of corticotropin to the patient (C
with a healed peptic ulcer, there was in addition a
cant increase in the pepsin concentration as well
total pepsin output (Figure 3).

Corticotropin and Uropepsin Excretion.—Th
pepsin excretion in the urine reflects the peptic
of the stomach. It is derived from the secretion
sinogen directly into the blood stream by the pep
of the stomach. Pepsinogen is then transported
kidneys and is excreted in the urine as uropepsi

That uropepsin has its origin in the stomach
denced by the disappearance of the enzyme fo
total gastrectomy and by its absence in the u
patients with pernicious anemia.[19] Thus, the peptic
of the stomach may be considered to have an en
as well as exocrine function. Uropepsin represe
endocrine activity, while the gastric pepsin repres
direct secretion of the gastric glands into the s
lumen.

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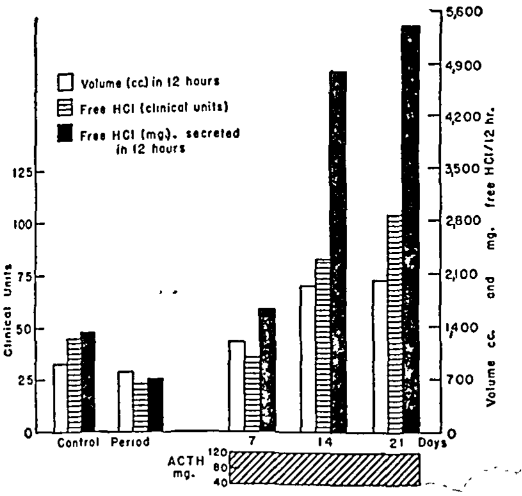
[19] Gray, S. J.; Spiro, H. M., and Reifenstein, R. W.: ACTH and Gastrointestinal Enzymes, in Mote, J. R.: Clinical ACTH Conference: Proceedings of First Conference, Philadelphia, The Blakiston Company, 1950, pp. 177-183; ACTH and Gastrointestinal Enzymes, Bull. New England M. Center **12**: 169, 1950. Spiro, H. M.; Reifenstein, R. W., and Gray, S. J.[18d]

evious studies in this laboratory have demonstrated orticotropin injected into normal subjects produced rked increase in the 24-hour excretion of uropepsin oximating 126% (Fig. 4).[10]

e oral or parenteral administration of 250 mg. of one daily to normal subjects produced a rise in



3.—Effect of corticotropin (ACTH) on gastric acidity (12-hour noc- secretion) in one patient (C. U.), demonstrating a dramatic increase secretion of hydrochloric acid to the active ulcer level. An active ıal ulcer developed in this patient two months later.

epsin excretion similar to that obtained with cortico- n. The average increase was 88% and was observed ost instances within 24 to 72 hours.

e increase in uropepsin excretion paralleled the rise stric juice pepsin in patients receiving corticotropin nually for periods of 7 to 21 days (Table 4). The uropepsin increase was 194% compared to an ge rise in pepsin concentration of 182%.

IPLICATIONS OF CORTICOTROPIN ADMINISTRATION

rrelation of Complications with Gastric Acidity, n, and Uropepsin.—Corticotropin was administered muscularly to a patient with a gastric ulcer in doses mg. four times a day for 10 days. Shortly thereafter patient presented definite evidence of impending ration with localized peritonitis, and there was ed aggravation of her ulcer symptoms with an in- e in the white blood cell count from 8,500 to 00, the appearance of guaiac-positive stools, severe le spasm, and exquisite localized tenderness in the strium.

is exacerbation of ulcer symptoms on corticotropin py was associated with an increase in gastric pep- rom control levels of 570 to 600 units per cubic meter of gastric juice to levels of 1,500 units on the nth day of corticotropin administration. The average in output rose from control levels of 51,000 units hour to 120,000 units. After corticotropin therapy discontinued, the pepsin fell to the original level prior erapy (Table 3). There was no significant change in volume of gastric secretion during corticotropin ad- stration.

he increase in gastric pepsin was accompanied by ncrease in urinary uropepsin from control levels of 0 units per 24 hours to 10,270 units during the re exacerbation of epigastric distress. After corticotropin therapy was discontinued and the patient became asymptomatic, the urinary uropepsin returned to the previous level of 4,795 units per 24 hours (Table 4).

A significant increase in gastric acidity occurred during the exacerbation of symptoms during corticotropin administration (Table 1). On the eighth day, the clinical units of free acid increased from 28 to 80 units and the output of free acid rose from control levels of 85 mg. to 234 mg. per hour.

When corticotropin therapy was discontinued, the patient became asymptomatic and a gastric resection was performed several weeks later. Microscopic examination of the specimen revealed a new acute penetrating ulcer at the site of the old gastric ulcer with early hemorrhagic necrosis of the scar—an acute exacerbation of a chronic ulcer.

CASE 1.—R. I., a woman aged 66, entered the hospital with a history of a gastric ulcer, diagnosed and treated for two months in another hospital. The patient apparently had had the ulcer for about five years. She presented the classic symptoms of epigastric pain occurring several hours after meals and relieved by ingestion of food. The patient was awakened occasionally at night by the pain. Roentgenograms revealed a gastric ulcer on the lesser curvature of the stomach. Gastroscopy confirmed the diagnosis. The gastric ulcer could be seen clearly on the lesser curvature of the anterior wall. The ulcer was approximately 1 in. (2.54 cm.) in diameter and was approximately ⅜ in. (0.95 cm.) in depth. The impression was gained that this was a benign lesion.

Treatment and Course: The patient was treated with a regimen of ulcer management consisting of milk and cream and a preparation of aluminum hydroxide gel with magnesium trisilicate and had a prompt response. Her symptoms cleared and she felt quite well. The ulcer management was then discontinued except for the ulcer diet and frequent feedings of milk and cream. The patient remained essentially asymptomatic.

Corticotropin was then administered in doses of 25 mg. four times a day. Within 24 hours the patient began to complain of a recurrence of her ulcer pain which was decidedly aggravated during the night and was associated with much flatulence and lower abdominal distention. After three days of hormone administration, there was pronounced epigastric tenderness and a localized area of protective muscle spasm which had hitherto not been present. The gnawing epigastric ulcer distress still persisted. After five days of hormone therapy, there appeared to be definite evidence of peritoneal irritation, as manifested by an area of severe muscle spasm and exquisite localized tenderness in the epigastrium. The patient complained bitterly of pain, which doubled her up on occasions. She felt that the pain was partly relieved when she drew up her legs.

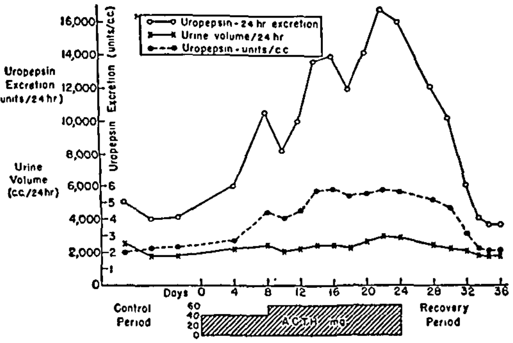


Fig. 4.—Effect of corticotropin (ACTH) on uropepsin excretion in one patient (A. D.), demonstrating an increase of uropepsin excretion to the active ulcer range during corticotropin administration. This patient died of a massive gastric hemorrhage and duodenal perforations during a subsequent course of hormone therapy for rheumatoid arthritis.

On the sixth day of hormone administration, it was believed that there was definite danger of perforation and localized peritonitis. The white blood cell count had risen from 8,500 to 15,000 and the stools became guaiac-positive although there was no significant fall in the hematocrit. The patient consequently was placed on a regular regimen of milk, cream, and aluminum hydroxide gel with magnesium trisilicate. This gave her partial relief, but she still complained of definite ulcer pain, particularly severe at night. The pain, tenderness, and physical observations that suggested a localized peritoneal reaction remained unchanged. After 10 days of administration of 100 mg. of the hormone a day, all medication was stopped. The roentgenograms revealed no change in the size of the ulcer, and there was no evidence of healing gastroscopically.

The patient was then given frequent feedings of milk and cream and Sippy powders. Within a few hours all her pain disappeared and she became essentially asymptomatic. Within 48 hours the localizing signs in the epigastric area had disappeared and the patient was quite comfortable. After several weeks, a gastric resection was performed and the ulcer in the stomach was found to be perfectly benign.

Microscopic Examination: There was an acute, recent ulcerative necrosis of the mucosa with its base in the surface of the muscularis. The base was composed of fibrinoid necrotic cellular debris in which were scattered disintegrated polymorphonuclear leukocytes. The immediate underlying muscle contained polymorphonuclear leukocytes and lymphocytes and fairly numerous capillaries and fibroblasts were growing radially into the base of the ulcer.

The muscularis beneath the ulcer had previously been thinned by a dense fibrotic process which extended out to the subserosa. In this subserosa and to some extent in the outer part of the scar there was considerable hemorrhage. There were many prominent blood vessels, large and small, that extended from the serosa well into the scar and muscularis. Similar vessels were seen in the muscularis and just beneath the ulcer, running at right angles to the axis of the stomach. All of these vessels were densely surrounded by lymphocytes and plasma cells. Smaller vessels in the scarred area were congested and contained numerous polymorphonuclear leukocytes, many of which had begun to invade the vessel wall and in some instances had passed beyond the vessel wall. Many of these vessels in the hemorrhagic areas showed loss of continuity of the walls and their contents merged with the surrounding hemorrhage.

Summary: Chronic ulcer with acute exacerbation. At the site of the old ulcer there is a new acute penetrating ulcer with early hemorrhagic necrosis of the scar with resulting thinning of the muscularis and total width of the wall.

The second patient (Case 2) died of a massive gastric hemorrhage and duodenal perforation after four courses of corticotropin therapy for rheumatoid arthritis. On the administration of 40 mg. corticotropin daily dur first course of treatment, the uropepsin excreti creased from the pretreatment level of 4,200 u 24 hours to the unprecedented level of 16,740 u the 22nd day (Fig. 4). At this point, the patient c plained of ulcer-like burning epigastric distress, n and vomiting. When corticotropin was discontinued uropepsin fell precipitously to 12,200 units and grad returned to the control levels eight days later. Th crease in uropepsin excretion was accompanied an increase in the concentration of uropepsin fro average of 2.1 units per cubic centimeter during control period to 5.7 units on the eighth day of co tropin administration.

Normal persons excrete 1,500 to 3,000 units of pepsin daily. Patients with active duodenal ulcers us excrete increased amounts of uropepsin. Excreti 16,000 units, however, has never been exceeded in duodenal ulcer patient in our experience.

TABLE 4.—*Effect of Corticotropin (ACTH) on Gastric Pepsin and Urinary Uropepsin*

Patient	Average Values	Control Period		No. of Days ACTH Administered			Recovery Period
		1	2	7	14	21	
J. A.	Gastric pepsin (units/cc.)	272	...	472	779	...	...
	Gastric pepsin (units/hr.)	18,500	...	37,760	56,000	...	...
	Uropepsin (units/24 hr.)	2,507	...	4,416	11,234	...	2,100
H. E.	Gastric pepsin (units/cc.)	512	...	581	482	471	...
	Gastric pepsin (units/hr.)	36,800	...	63,000	34,800	39,400	...
	Uropepsin (units/24 hr.)	2,713	...	5,234	9,936	9,860	2,400
R. I.	Gastric pepsin (units/cc.)	572	639	1,500	...	...	813
	Gastric pepsin (units/hr.)	48,000	53,500	120,000	...	...	65,040
	Uropepsin (units/24 hr.)	4,889	4,920	10,270	...	...	4,795
O. D.	Gastric pepsin (units/cc.)	150	177	847	577	458	170
	Gastric pepsin (units/hr.)	12,000	15,600	71,000	69,300	57,000	21,800
	Uropepsin (units/24 hr.)	3,900	4,450	7,400	7,300	14,000	4,500
I. N.	Gastric pepsin (units/cc.)	466	274	...	997	716	444
	Gastric pepsin (units/hr.)	39,200	29,600	...	99,700	77,500	30,000
	Uropepsin (units/24 hr.)	2,406	2,632	...	4,816	5,798	2,200
B. F.	Gastric pepsin (units/cc.)	0	232	...	431	...	0
	Gastric pepsin (units/hr.)	0	13,900	...	41,500	...	0
	Uropepsin (units/24 hr.)	3,186	3,104	...	5,486	...	2,737

CASE 2.—A. D., a 23-year-old man, entered the hospital treatment of severe rheumatoid arthritis and amyloi During his hospital stay, the patient received four cours corticotropin intramuscularly. During the first course (Sep to Oct. 18, 1949), which consisted of 40 mg. daily for eight and then 60 mg. daily for 16 days, there developed in the pa nausea, vomiting, and epigastric distress, which slowly respo to an ulcer diet and Sippy powders. A gastrointestinal series gested antral gastritis but did not reveal an ulcer crater. The of corticotropin on uropepsin excretion is presented in Figu

A second course of corticotropin therapy from Nov. Dec. 28, 1949, consisted of 1,900 mg. over a period of 30 and was again accompanied with considerable nausea vomiting.

The third course of corticotropin was administered from 18 to Feb. 8, 1950, and consisted of 40 mg. daily for 19 and was complicated by a mild psychotic tendency. One m after this course had been completed, the patient began to plain of severe ulcer-like, burning epigastric pain and hematemesis. Despite negative gastrointestinal x-ray series, symptoms were quite refractory to ulcer management. was observed in the gastric contents which contained 44 of free hydrochloric acid.

In March, 1950, he became asymptomatic in respect t gastrointestinal tract and he was then given a fourth cou corticotropin therapy from March 23 to April 20, 1950 received 40 mg. daily for 20 days and then the dose was gra

ered off. Despite maintenance of a Sippy regimen, the
t complained of occasional heartburn which was re-
by milk and antacids. His appetite and food intake im-
l during this course. At the end of treatment, however,
nperature rose to 103.8 F. The next day bloody stools and
e hematemesis occurred after a bout of severe abdominal
Shock, anuria, and respiratory failure led to his death
24 hours.

opsy revealed blood in the stomach, a diffusely hemor-
gastric mucosa, and friable, hemorrhagic, necrotic areas
mucosa of the duodenum and distal ileum.

roscopic specimens revealed acute hyperemia and diffuse
rhage of the mucosa. In one area there was superfiicial
is of the mucosa with a polymorphonuclear leukocytic re-
. Considerable bloody serum was seen adherent to the
of the mucosa. Most of the microscopic findings were
l to the mucosa and submucosa. No thrombi were ob-
and none of the deep vessels showed evidence of
.

rther Clinical Observations.—Two perforated duo-
ulcers were observed in a patient receiving 2,080
f corticotropin over a period of 19 days.

E 3.—T. K., a 54-year-old man, was admitted for corti-
in treatment of biopsy-proved periarteritis nodosa. After
ys of 100 mg. of corticotropin daily, several small
emeses developed. Treatment was continued, however,
the 10th day of therapy, the daily dose was increased to
g. On the 14th day of treatment, there developed in the
t severe right upper quadrant tenderness and spasm asso-
with ileus. Pruritic jaundice followed with elevation of the
alkaline phosphatase. Corticotropin was administered in
of 120 mg. daily for five more days and then was discon-
l after a total period of 19 days.

jaundice gradually diminished, but diffuse abdominal
ness, which had its onset after 14 days of corticotropin
y, persisted, particularly in the right upper quadrant. A
le abdominal mass associated with diarrhea developed in
tient and he died in uremia and pulmonary edema 15
after corticotropin had been discontinued, and approxi-
y 20 days after the onset of the abdominal pain.

opsy revealed two duodenal perforations, one 3 mm. in
n the posterior wall, about 1 cm. beyond the pyloric ring,
second perforation 1 cm. in diameter with irregular,
tic mucosa overhanging its margins about 2.5 cm. beyond
st perforation.

croscopic study revealed the wall infiltrated with lympho-
and plasma cells with only an occasional polymorpho-
ar leukocyte. A narrow zone of enzymatic digestion sur-
ling the perforation was observed and the wall here was
ated with lymphocytes and plasma cells. There was no
rterial infiltration or scarring. There was no fresh throm-
and no evidence of periarteritis nodosa.

e lack of polymorphonuclear leukocytes would indicate
his lesion was at least two weeks old. There was no evidence
preceding chronic duodenal ulcer.

massive fatal gastric hemorrhage developed in the
wing patient after he had received 3,160 mg. of
icotropin over a period of 76 days.

SE 4.—W. M., a 58-year-old male patient, was treated for
matoid arthritis and received 60 mg. of corticotropin daily
8 days, 40 mg. daily for 21 days, and then 60 mg. for 5
days, until discharged from the hospital on Nov. 15, 1950.
total hospital dose was 1,620 mg. over a period of 34 days.
ome he received an additional total dose of 1,540 mg. over
riod of six weeks, ending Dec. 28, 1950. On Dec. 29 the
nt suffered excruciating epigastric and substernal pain. A
k later hematemesis, mild shock, and abdominal pain fol-
d and were poorly controlled by methantheline (banthine®)
nide, transfusions, and Wangensteen constant suction. His
dition gradually deteriorated, with repeated hemorrhage and
tionality. He died on Jan. 2, 1951. The presumptive diagnosis was hemorrhage from a peptic ulcer because of previous x-rays demonstrating a duodenal ulcer and an ulcer history of five years' duration with symptomatic relief by antispasmodics and an ulcer diet.

GASTRIC COMPLICATIONS INCIDENT TO OTHER FORMS OF STRESS

Anoxia.—Anoxia itself constitutes a form of severe stress and may be associated with an acute gastric perforation similar to that seen during corticotropin administration. This was demonstrated in the following patient who had a gastric ulcer of several years' duration and suffered a perforation during a period of anoxia secondary to a coronary occlusion.

Case 5.—F. I., a 64-year-old white man, was known to have gastrointestinal complaints of 40 years' duration controlled on sporadic ulcer management. He experienced a gastric hemorrhage in January, 1948, and a gastrointestinal series and gastroscopy established the presence of a gastric ulcer on the lesser curvature of the stomach at the angulus. The patient became asymptomatic on ulcer management and remained free of symptoms for the duration of the history. In 1948 he also was found to have hypertensive cardiovascular disease with a blood pressure of 210/130 and a moderately enlarged heart.

The patient was completely asymptomatic until Sept. 17, 1950, when he suffered severe oppressive chest pain accompanied with sudden shortness of breath, weakness, cyanosis, and orthopnea. A diagnosis of acute posterior myocardial infarction was made by electrocardiogram. The patient was in shock for most of this hospitalization with the blood pressure dropping from 120/100 to 80/60. In spite of oxygen and the insertion of an airway, his breathing remained stertorous and he remained cyanotic and in shock.

Six hours prior to death, the patient complained of severe acute epigastric pain associated with signs of peritoneal irritation and abdominal rigidity. A Levin tube was inserted and guaiac-positive material was obtained. He was then given milk and antacid through the tube without relief of the distress. The patient finally died on the fourth hospital day.

Autopsy revealed an acute myocardial infarction of the posterior wall of the left ventricle, subsequent to acute and complete occlusion of the major coronary artery.

The stomach revealed a large encircling shallow ulcer 5 cm. in diameter beneath the cardia with a red-brown color and no fibrin over the surface. On the lesser curvature, 5 cm. from the pylorus, there was another large ulcer 6 cm. in diameter with a perforation about 1 cm. in diameter which extended to the peritoneal cavity The omental fat was adherent to the serosal surface in the region of the perforation. This perforated gastric ulcer was at the site of the previous chronic gastric ulcer observed over a period of two years prior to death.

Microscopic examination showed acute recent necrosis of the mucosa extending to the submucosa at the margins and through the muscularis at the site of the perforation. At the margin there was necrotic mucosal cellular debris, infiltrated by polymorphonuclear leukocytes, most of which were disintegrating. The base of the ulcer was composed of a layer of fibrinoid material containing polymorphonuclear leukocytic debris. Adjacent to this base were several veins and one artery whose walls were infiltrated by well-preserved polymorphonuclear leukocytes. The wall of one vein was necrotic and part of this wall had disintegrated. At the site of perforation the acute necrotizing process extended through the muscularis and stomach wall. There was no fibroblastic response anywhere in the ulcer; the vascular damage was more recent than the overlying ulcerative process, as evidenced by the newly infiltrated leukocytes, general lack of endothelial swelling, and no evidence of beginning organization. The mucosal ulcerative process was about 24 to 48 hours old, the deeper reaction in the vessels more recent.

The ulcer and perforation described were considered acute, but they could represent an acute exacerbation of an old chronic process.

The occurrence of massive gastric hemorrhage from a pyloric ulcer during the intravenous administration of corticotropin to a patient with chronic anoxia is illustrated by the following case.

CASE 6.—J. K., a 45-year-old man, a respiratory cripple with chronic asthmatic bronchitis and cor pulmonale, was admitted in severe respiratory distress with cyanosis, secondary polycythemia, and alkalosis. After bronchoscopic drainage and Drinker respiratory therapy had been instituted, 50 mg. of corticotropin was given intravenously over an eight-hour period. Twenty-four hours later, hematemesis and tarry stools appeared after a second such intravenous dose of corticotropin. Forty-eight hours after admission the patient died in shock from massive hemorrhage from a pyloric ulcer revealed at autopsy. There was no previous history of a peptic ulcer. Because of bronchial asthma, chronic bronchitis, and emphysema, the patient had suffered chronic anoxia and cyanosis for a number of years.

At autopsy the stomach and entire gastrointestinal tract contained black tarry blood. There was an ulcer of the anterior pyloric ring with slight surrounding induration about 1 cm. in diameter and 0.5 cm. in depth.

Microscopic section of the ulcer and pyloric region showed acute fibrinoid necrosis of the mucosa, submucosa, and immediately underlying muscle with infiltrating polymorphonuclear leukocytes which had degenerated. A number of small venules were eroded by this process in the floor of the ulcer. There was no fibrosis or evidence of chronic vascular disease or thrombosis. The histological age of the lesion was estimated at two days or less.

Brain Tumor.—An exceedingly high gastric pepsin and urinary uropepsin in the peptic ulcer range were observed in a patient with a tumor involving the hypothalamus.

CASE 7.—R. M., a 4-year-old boy, was admitted on Sept. 13, 1950, with a four-day history of dizziness, unsteadiness, and a staggering gait. There had been no history of gastrointestinal symptoms or disease previously. Ventriculograms on Sept. 19 suggested a posterior fossa tumor with fourth ventricular block.

The day after ventriculography the patient was drowsy and vomited a few times without hematemesis. On Sept. 25, fever of 103 F and a stiff neck suddenly developed. Lumbar puncture revealed cloudy cerebrospinal fluid from which alpha hemolytic streptococci were cultured.

Two days later, Sept. 27, 1950, as the meningitis was responding to antibiotics, grossly bloody coffee-ground material was aspirated from the stomach and the stools became tarry. A posterior fossa exploration, performed on Oct. 2, revealed an extensive medulloblastoma invading the hypothalamic area.

Postoperatively, the patient never regained consciousness. The gastric bleeding and tarry stools persisted until Oct. 25, when the stools became guaiac-negative following prolonged therapy with antacids and frequent tube feedings.

The gastric juice pepsin concentration on Oct. 21 and Oct. 28 were 1,076 and 1,636 units per cubic centimeter, respectively, and the uropepsin excretion was 13,580 units per 24 hours. Although the suspected Cushing's ulcer had supposedly healed, the patient's coma deepened and he died on Nov. 5, the 34th postoperative day. Autopsy permission was refused.

COMMENT

It is of considerable significance that corticotropin may produce, in normal persons, a level of gastric acidity and peptic activity commonly found in patients with an active duodenal ulcer. The average increase in the free acid, pepsin, and uropepsin each approximated 150 to 250% and reflected in most instances a rise in concentration. The administration of corticotropin to normal persons increased the basal secretion of hydrochloric acid
to the active duodenal ulcer level in every instan
to corticotropin administration, the average bas
tion, calculated on a 10-minute basis, was 31×10
hydrochloric acid, which agrees closely with B
field's data for normal persons.[16] During corti
administration, these same patients secreted 119
mEq. hydrochloric acid, which falls into the ra
active duodenal *ulcer patients.* The 12-hour noc
secretion of hydrochloric acid during corticotrop
apy also rose to the active duodenal ulcer level (T
2).

Patient C. U., with a healed inactive duodenal
secreted 5,550 mg. of free hydrochloric acid duri
ticotropin *administration,* which is an unprecedented
for an active duodenal ulcer patient (Fig. 3). Th
hour nocturnal volume of gastric juice increased
result of corticotropin, *to* 1,650 cc., which is con
ably higher than the average value observed in pa
with an active duodenal ulcer (Table 2). An a
duodenal ulcer developed in this patient two m
later.

The uropepsin excretion in normal persons rec
corticotropin also *increased* to levels commonly ob
in patients with peptic ulcer (Table 4). This was m
demonstrated in the patient who died of a massive g
hemorrhage and duodenal perforation following
courses of corticotropin therapy for rheumatoid ar
(A. D.). The uropepsin level increased from th
treatment level of 4,200 units in 24 hours to an ex
ingly high range of 16,740 units after 22 days of c
tropin therapy (Fig. 4). Although the gastric acid
not measured in this patient, it was probably in
considerably, in view of the data which have be
sented and the patient's ulcer-like symptoms wh
sponded to *antacid* therapy.

The necrosing and erosive *properties* of acid-p
gastric juice are well established. There is no reas
doubt that the continuous stimulation or overprod
over a period of days or weeks of highly acid g
juice rich in pepsin may result in a reactivation, pe
tion, or hemorrhage from peptic ulcer.[20] This was
matically demonstrated in one patient (R. I.), in
evidence of perforation and peritonitis *developed*
on corticotropin administration for 10 days with
companying threefold increase in *free* acidity
135% increase in the concentration and hourly
of gastric pepsin (*Tables* 1, 3, and 4).

The prolonged administration of corticotropin
tisone may subsequently present a *hazard* to patient
peptic ulcer. An x-ray examination of the stomach
to hormone treatment and the use of antacids su
aluminum hydroxide may be indicated whenever th
for several weeks is contemplated. Special caution
ommended in the hormone treatment of patients
anoxia and intracranial lesions, since corticotropi
cortisone constitute additional stress factors, as ex
fied *in* certain patients (F. I., J. K., and *R. M.*).

The development of hemorrhage, perforation,
activation of a peptic ulcer usually requires seven or
days of corticotropin administration. Review
literature reveals only the *exceptional case in* which
complications occur sooner. A similar time relati

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20. Ivy, A. C., and others: Peptic Ulcer, Philadelphia, The Blakiston *Company,* 1950, pp. 207-225, 554.

; observed with respect to the effect of corticotropin acid and pepsin production. In most instances, the ximum acid and pepsin effect was observed after 7 14 days of corticotropin therapy, although in some ances 21 days of corticotropin administration were essary (O. D. and C. U.) (Tables 3 and 4). The adistration of 200 mg. of corticotropin intramuscularly 500 mg. cortisone orally to four active ulcer patients duced no significant change in the gastric acid or pepin the ensuing 24 hours. Apparently chronic and reted stress is necessary to increase the acid and pepsin tent of the gastric juice. An example of this may be increased incidence of perforated peptic ulcers during repeated air raids in England.

The characteristic microscopic picture of the stomach atients experiencing perforation, hemorrhage, or reivation of an ulcer during corticotropin administration ; that of an acute process with edema, hyperemia, rosis, and cellular infiltration of the mucosa and subcosa. There was no evidence of vascular disease or ombosis. The histology suggested an enzymatic and l digestion process rather than an underlying vascular ase and revealed changes similar to the ulcerative ons produced experimentally by the instillation of hly acid or acid pepsin solutions into the stomach. der these conditions, the mucosa is unusually sustible to ulceration, hemorrhage, or perforation.[21]

The effect of corticotropin on the stomach is due to secondary outpouring of adrenal cortical steroids her than to the primary action of corticotropin itself. tients with adrenal insufficiency, for example, show no tric response to corticotropin, but a definite effect was nonstrated with cortisone.[10] Cortisone and corticopin elicit an equal gastric response in normal persons, vever. The increase in gastric acidity or pepsin content ends, however, on an adequate steroid level. One pant receiving 30 to 40 mg. of corticotropin intramuscully every six hours for four weeks did not demonstrate all in circulating eosinophils or an increase in urinary osteroid excretion and failed likewise to experience an rease in gastric acidity or pepsin. The amount of corone necessary to produce a gastric response also varies different persons.

The importance of stress factors in the pathogenesis l chronicity of gastroduodenal ulcers has been estabied, and peptic ulcer has often been designated as a ess disease. The production of acute gastric and duoal hyperemia and erosions, sometimes with hemorge, is a characteristic manifestation of the first stage the general adaptation syndrome. Chronic stress, fear, d anxiety, as well as hostility and resentment, are assoted, moreover, with an increased secretion of hydroloric acid.[22] The exact relationship, however, between acute gastroduodenal erosion of the alarm reaction d chronic peptic ulcer in man has not yet been clarified.

Although the gastric response to stress is undoubtedly ediated in part, at least, through the vagus nerve, the idence presented strongly suggests that an additional rmonal mechanism is involved which is intimately assoated with the general adaptation syndrome.

It has been demonstrated conclusively that after biteral vagotomy, lesions in the brain stem are followed by focal hemorrhages in the stomach identical in all respects with those observed following brain stem lesions with the vagi intact.[23] Thus, there is good evidence that interruption of the vagal roots still leaves open a pathway over which abnormal or excessive impulses from the hypothalamic centers can exert a deleterious effect on the stomach.

As a result of emotional or systemic stress, the hypothalamus appears to secrete a humoral substance which stimulates the pituitary gland to secrete corticotropin. Corticotropin in turn activates the adrenal cortex to release a number of steroid hormones, including cortisone and cortisone-like compounds, which then cause the gastric glands to secrete acid and pepsin (Fig. 1). Whether these steroids act on the vagal nerve endings or are associated with other hormones such as gastrin remains to be determined.

SUMMARY AND CONCLUSION

1. Corticotropin (ACTH) administered intramuscularly to normal subjects in doses of 100 to 160 mg. daily for periods of three to four weeks produced a marked increase in the basal and nocturnal gastric secretion of acid and pepsin approximating 200%. In every instance, corticotropin increased the acid secretion to the active duodenal ulcer level. A similar gastric response may be induced with cortisone.
2. The maximum acid and pepsin effects were observed after 7 to 14 days of continuous corticotropin therapy. This coincides with the usual duration of corticotropin or cortisone therapy which precedes the reactivation, perforation, or hemorrhage from peptic ulcer.
3. The administration of 100 mg. of corticotropin daily to a patient with an active gastric ulcer produced definite evidence of impending perforation, localized peritonitis, and a marked aggravation of the ulcer symptoms. This was accompanied with a threefold increase in gastric acidity and a marked increase in gastric pepsin secretion.
4. The uropepsin excretion was increased during corticotropin therapy to levels commonly observed in patients with active duodenal ulcer. Unusually high uropepsin levels were observed in a patient in whom a massive fatal gastric hemorrhage and duodenal perforations developed during corticotropin therapy.
5. The prolonged administration of corticotropin or cortisone constitutes a hazard to patients with peptic ulcer. An x-ray examination of the stomach prior to therapy and the use of antacids are indicated in such cases. Similar precautions may be necessary in patients with anoxia or intracranial lesions.
6. The present studies suggest that chronic emotional and physical stress is transmitted to the stomach by a hormonal mechanism mediated through the adrenal gland and may induce gastrointestinal ulceration through the hypothalamic-pituitary-gastric pathway.

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PROBLEMS OF PROLONGED CORTISONE TREATMENT FOR RHEUMATOID ARTHRITIS

FURTHER INVESTIGATIONS

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and
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In September, 1949, our research group began investigations of prolonged use of cortisone and corticotropin (ACTH) in patients with rheumatoid arthritis, hoping to answer the questions: 1. Can cortisone and corticotropin be tolerated for long periods? 2. Does prolonged use of these hormones benefit the arthritis? 3. Is prolonged use of cortisone and corticotropin practical? In June, 1950, at the meeting of the American Rheumatism Association, experiences to that date were reported as observed in nine patients, three of whom received corticotropin and six of whom received cortisone for more than 100 days. These patients, then still being treated, had tolerated the hormone with only minor or no undesirable effects and with good antirheumatic benefit. Now, after 12 additional months, we make a progress report of further investigations. Although they are being continued and cannot be finally summarized, the number of cases has been substantially increased, and there has now been opportunity to observe the course of many patients after the hormone has been discontinued.

PLAN OF STUDY

of the greater facility of its prolonged use in y patients, cortisone has been employed in all ases during the past year, and this report deals only with the cortisone-treated patients. The hormone was administered orally almost exclusively during the last nine months of study.

The number of cases now reported on is 44 (25 women, 19 men). To be included in this study it was required that a patient receive the hormone uninterruptedly for more than 100 days. Seventeen were treated for more than 200 days; nine, for more than 300 days; four, for more than one year, the longest time being 406 days. In all instances, it was planned not to produce complete remission, but rather to effect only partial remission to the degree that the patient and physician considered desirable and sufficient to relieve most of the pain and stiffness and to improve function enough to substantially rehabilitate the patient. In this way, clinical and laboratory signs of the disease persist but are substantially reduced.

THERAPEUTIC RESULTS OF PROLONGED THERA

In general there was good, oftentimes excellent
rheumatic effect during administration of the hor
In only two instances (4%) when long-term trea
with cortisone had been planned was it stopped be
of poor therapeutic effect. Results in different pa
are shown in graphs of representative cases (Fig. 1 t

Explanation of Graphs.—In these graphs the p
administration and dosage of the hormone is sho
the top. Upright, crosshatched columns depict i
muscular injections; horizontal lines show oral m
tion divided into the number of daily doses, arr
with the morning dose on the bottom and subse
doses above. Below this, clinical manifestations (a
posite of symptoms and signs as evaluated by the a
ing physician) are plotted in terms of percenta
pretreatment findings. For example, if it were esti
that the symptoms, signs, and function in composi
half the degree that obtained before hormone was a
istered, the clinical manifestations would be cha
50%, if at another time the combined estimate we
quarter of the original degree, the residual clinical
festations at that time would be 25%, or, said in a
way, there would be a 75% remission (the de
remission being in inverse proportion to the percen
clinical manifestations). Although these are estim
they are made very carefully, after critical eval
and serve better than any other way known to us to
sent graphically the clinical state. Below clinical
festations is charted the erythrocyte sedimentatio
(Westergren method). In some graphs, other d
plotted below this section.

Patient W. H. (Fig. 1) received cortisone long
did any other patient—406 days. The steroid was
intramuscularly at all times to this patient. There
difficulty from side effects at any time, and the
was maintained in about 75% remission throug
of this long period of time. After initial daily inj
of 100 mg. of cortisone acetate suspension this do
injected three times weekly. On two occasion
amount of hormone was inadequate to maintain
sired degree of remission, so daily injections wer
for a few days. After the 150th day, the desired
remission was maintained for a long period with
tions of 100 mg. given three times a week. Later th
was injected twice weekly; then 75 mg. and later
were injected twice weekly. In this way the hormo
gradually withdrawn, and the clinical manifestatio
continued at a level of 50% or less of the preco
level up to the time of this writing—190 days af
continuance of cortisone therapy. This is the longe
cortisone remission we have observed, and it is q

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From the Hospital for Special Surgery and Cornell University Medical College.

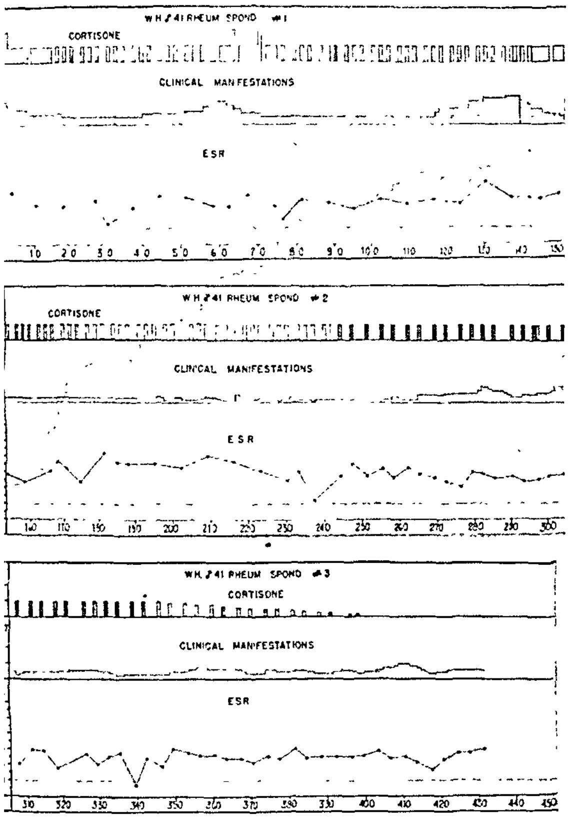
Dr. Stevenson is a Schering Corporation Research Fellow in Rheumatic Diseases.

Read before the annual meeting of the American Rheumatism Association, Atlantic City, N. J., June 8, 1951.

These investigations were supported in part by the Fund for Research in Rheumatic Diseases, Hospital for Special Surgery, and in part by a grant from the Institute [illegible] thritis and Metabolic Diseases, United States Public Health Servic

ɔtion. This case, then, is an example of a patient rheumatoid spondylitis who improved significantly cortisone was administered in only moderate doses, who continued to be significantly improved long administration of the hormone was discontinued.

ıother patient, A. J. (Fig. 2), had a similar course. route of administration was changed from intra-ular injection to oral on the 247th day. The effect) mg. daily by the oral route compared favorably that of an average of 43 mg. daily by injection. The lose was divided into three parts given immediately meals, a plan we have found best in practically all . This plan of oral cortisone treatment has given the thest effects; the hormone has been well tolerated. sone acetate given orally, in three divided doses, ɔeen found in many trials to have essentially the



1.—Graphic representation of prolonged intramuscular adminis- ı and clinical effects of cortisone acetate.

ɜ effects as the intramuscularly injected suspension ven in 20% larger doses. When the entire daily unt was given in one oral dose many tests showed requirement for comparable effects was approxi- ɜly twice the amount needed when given intramuscu- '. Hence, practically all oral maintenance doses of isone were given in three divided doses after meals. this patient the oral dose was very gradually reduced 0 mg. daily, and it is seen (Fig. 2) that the clinical dition continues to be very good (now 300 days in tment). Only minor undesired hormone effects have ɪrred.

'or patient M. R. (Fig. 3) cortisone acetate was used ly throughout and the good initial improvement has ı maintained even on a daily dose as small as 50 mg. complicating hormone effects have occurred.

MAINTENANCE REQUIREMENT OF CORTISONE

The cases described show the good antirheumatic effect during use of cortisone for prolonged periods. The amount required to maintain the desired effect varied from as little as 25 mg. at certain times in a few patients to more than 100 mg. daily; usually 50 mg. or more was required daily. In many patients a good partial remission could be maintained with 50 to 75 mg. daily. If more than 75 mg. daily was required for satisfactory effect we seldom continued treatment, for hormone effects other than the antirheumatic benefit usually made such complications that it seemed unwise to continue to administer cortisone. It was impossible to correlate the difference in maintenance requirement with the extent or duratiôns of

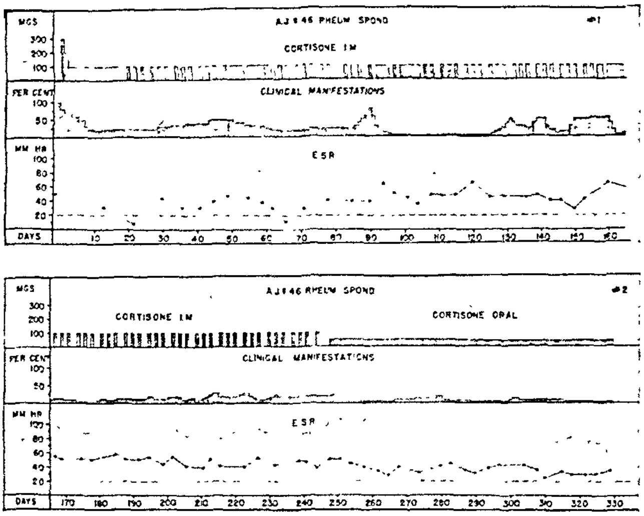


Fig. 2.—Dosage and effect of cortisone acetate given as "maintenance" treatment for a patient with rheumatoid spondylitis.

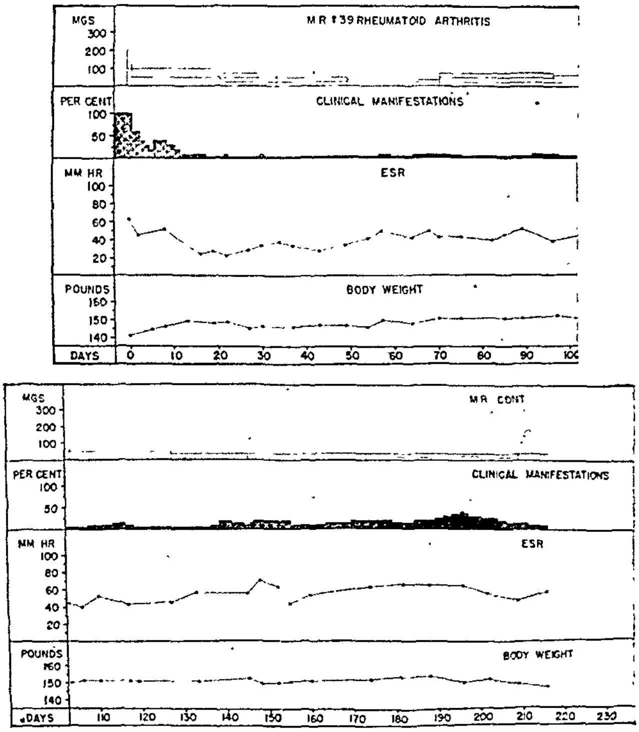


Fig. 3.—Oral administration of cortisone acetate as "maintenance" treatment.

the disease, the age, size, or sex of the patient. We came to regard the maintenance requirement of cortisone as paralleling the severity of the arthritis, even though the requirement did not correlate well with the pretreatment erythrocyte sedimentation rate. Also we realize how difficult it is to accurately determine severity of this disease, except as actually measured in terms of response to treatment, such as cortisone requirement.

"Maintenance" doses of cortisone acetate in amounts up to 75 mg. daily were usually well tolerated; although the longer the treatment was continued, the greater was the chance for trouble. By using no more than 75 mg. of cortisone acetate daily, complications were usually readily corrected or controlled; with larger daily doses, troublesome effects were sooner or later encountered from "hypercortisonism."

TABLE 1.—*Complications Noted During Maintenance Dosage of Cortisone in Forty-Four Cases*

Type	Grades 1	2	3	4	Incidence Total No. of Cases	%
Cushing's syndrome						
Round face	10	2	1	..	13	30
Obesity	6	2	..	..	8	18
Hirsutism	4	..	..	..	4	9
Acne	2	..	..	..	2	4
Electrolyte problems						
Edema	14	6	2	..	22	50
Potassium decrease	4	..	..	..	4	9
Endocrine problems						
Diabetes	..	1	..	1	2	4
Irregular menstruation	8	..	..	..	8	32
Menopause symptoms	5	..	..	..	5	20 *
Nervous system						
Jitteriness, insomnia	9	2	..	..	11	25
Excitement	2	..	..	..	2	4
Depression	..	..	1	..	1	2
Circulatory and blood changes						
Tachycardia	12	2	2	..	16	36
Blood pressure elevation	11	3	..	..	14	32
Telangiectasis	2	..	..	..	2	4
Purpura	3	2	..	..	5	11
Gastrointestinal hemorrhage	..	..	..	2	2	4
Thrombosis (leg)	2	..	..	..	2	4

* Percentage of female patients only.

UNDESIRABLE SIDE-EFFECTS

Change of Facial Contour, Obesity, Hirsutism, Acne, Edema.—The nature and incidence of complications encountered in our series of cases are shown in Table 1. Rounding of the face occurred in 30% of cases, but it was usually slight; in only three instances was it objected to by the patient (grades 2 and 3). Tendency toward general obesity was a small problem in 18% of cases; it could be controlled with little difficulty. Hirsutism and acne were infrequent and mild. Edema was present to a varying degree in half of the patients; in most cases it was easily controlled by a low sodium diet, and, in some cases, the administration of ammonium chloride. In eight patients (those with edema grades 2 and 3) injections of a mercurial diuretic were required. Greater attention to adequate potassium intake was required when diuretics were employed. In two cases, grade 3 edema was difficult to control. The incidence of edema in this group of cases was higher than reported by some investigators, no doubt because a low-sodium diet and potassium or ammonium chloride were not routinely prescribed at the start of treatment, for we wished to determine by experience in how many patients develops while maintenance doses of cortisone are given. Because edema was encountered in only hal cases, it was thought wise not to impose these restrictions except when needed. Frequent measur of serum potassium revealed that in 9% of cas values developed. Orally administered potassium ride promptly corrected this abnormality and mai normal levels so that no complications due to lo potassium were encountered.

Hyperglycemia.—Disturbance of carbohydra tabolism developed in two patients. In one case, suria and elevated blood sugar appeared first du third week of treatment and never became wor grade 2; the abnormality was reasonably we trolled by dietary measures alone. The second began to show glycosuria during the fifth week ment; the metabolic disturbance became prog worse so that without insulin 120 to 180 gm. of would be excreted daily, and the fasting blood su to as high as 600 mg. per 100 cc. Even so, it is int that ketosis did not develop. In this case it was co wise to discontinue cortisone therapy because complication. Steady improvement occurred metabolic abnormalities after withdrawal of mone, but mild hyperglycemia persisted into post-treatment week.

Menstrual Disorders.—One-third of the 25 fe tients had irregular menstruation with scanty occasional dysmenorrhea, prolonged intervals, porary amenorrhea. These menstrual disorder source of worry, but always disappeared, if n treatment, after withdrawal of the hormone. menopausal, or early menopausal women, neur tory symptoms were often intensified (20% o patients). Estrogens usually relieved these sym

Mental Disturbances.—In planning prolong sone treatment we were considerably apprehe undesirable effects on the central nervous sy psyche. However, nervous symptoms occurre than one-third of the patients. This may be exp least partly by the fact that after the first few m this study, care was taken not to treat patients nervous or depressed, or who had had major di of this nature in the past. Moreover, careful se made throughout treatment for exciting or stimulating effects of the hormone. These effe considered indications for reducing the dose of h Insomnia was regarded as particularly importa other factor was that in all cases relatively small hormone were used. With these considerations teresting to note that only 25% of all patients con of nervousness or insomnia, which was relieved ing the amount of hormone. In only two pati there pathologic excitement; this was mild and when smaller doses of cortisone acetate were e Major depression occurred in only one patient instance it is probable that a depressed state wa vated by cortisone, for earlier in her life psychiat lems existed, and during cortisone administratio succession of psychic traumata occurred (deat patient's mother, a daughter's broken marriage ment, and the confinement of a son in a neurops ital). There is little wonder that a major depression ld occur. The patient reacted favorably to shock ment and a few weeks of psychiatric care after cor- e withdrawal. This patient, one of our early treat- t cases, would have been rejected for prolonged hor- e treatment in the latter part of the study.

chycardia.—A large variety of abnormalities affect- he blood and circulation were noted. Tachycardia the commonest. A pulse rate of 100 to 120 would ently persist in these patients without other clinical lectrocardiographic abnormalities and with no ges in the basal metabolic rate. We cannot explain achycardia; it may be due to the general stimulating t of the hormone. Usually within 7 to 14 days after ntinuing cortisone therapy, which was not done be- e of the tachycardia, the pulse rate reverted to the ortisone level. Various changes occurred in the elec- rdiograms of several patients, but these were not acteristic of any disease pattern.

evation of Blood Pressure.—In one-third of the pa- s elevation of blood pressure was noted, but this was lly in the order of 20 or 30 mm. Hg systolic and 10 5 mm. Hg diastolic, and in most instances did not to progress to hypertensive levels. Normal or slightly blood pressure would again obtain in the early post- isone period. In only 3 of 44 patients was blood pres- elevated to a moderately hypertensive level; it did continue to increase and treatment was cautiously inued.

elangiectasis and Purpura.—Telangiectasis appeared vo patients during cortisone treatment, and has per- d without other recognized abnormalities except ycardia in one of the patients. In five patients, small puric hemorrhages developed along the extremities, lly the legs. These ceased during continuance of tment.

emorrhage.—In two female patients there were sive hemorrhages into the gastrointestinal tract. One ese patients had had a peptic ulcer and had hemor- ed on two previous occasions. That not all patients have had ulcers get in trouble when cortisone is used own by the fact that in several other patients in our s who had ulcers, no activation of the ulcer or hem- age occurred during prolonged use of cortisone. The r patient of our group who hemorrhaged had no wn gastrointerstinal disease, but after cortisone was drawn because of the hemorrhage, an abdominal or became evident and was removed surgically. It a leiomyosarcoma. At the time of operation no cause bleeding could be found. On the third postoperative a cautious trial of corticotropin in small doses was at- pted because of hypotension, and again a massive orrhage occurred. Hence, it seems reasonable to con- r the bleeding due to effects of the hormone.

hrombosis.—Thrombosis of superficial leg veins was dly troublesome to two patients. In no patient of this up was there thrombosis of coronary arteries or car- c failure; in fact, in three patients treatment was bene- al and well tolerated when started within a few days er correction of congestive heart failure.

Summary.—It was of particular interest to us that betic metabolic disturbances and hypertension did not dually develop and progress late in prolonged treatment, as we feared might be the case. Instead it was our experience that troublesome diabetic and hypertensive changes made their appearance within the first few weeks of treatment if they occurred. We think it of significance but cannot explain the fact that the incidence and severity of complications were considerably greater among female patients. This is true with all types of side-effects, not just those associated with ovarian functions.

In this report, all complications encountered have been considered in relation to prolonged use of cortisone; however, it may very well be that some of these are in no way related to or the result of the hormone.

Treatment is being continued in 23 of our patients, and in the majority a fixed daily dose continues to maintain the desired effect. In only five cases (11%) has it been necessary to gradually increase the amount of cortisone after several months' use, to keep the desired antirheumatic effect. This has been in contrast to our experience with corticotropin, which we frequently needed to administer in gradually increasing amounts for maintenance of good effect.

TABLE 2.—*Status of Cases Studied*

	No. of Cases
Treatment being continued	23
Increased dose of hormone required	5
Treatment discontinued	24 *
Because of complications	6
Diabetes	1
Mental depression	1
Edema and poor benefit	2
Massive gastrointestinal hemorrhage	2
By choice	18

* Treatment resumed in some cases.

PROGRESS OF PATIENTS AFTER WITHDRAWAL

Opportunity to study post-cortisone events has been presented in the follow-up of the 24 patients in whom for various reasons, cortisone therapy was discontinued (Table 2). In six of these cases (14%) it was considered necessary to withdraw the steroid for the best interest of the patient because of troublesome complications. These were diabetes and mental depression, one instance of each; edema, which was difficult to control in two patients who had little antirheumatic benefit; and two instances of massive hemorrhage. It should be noted that five of these six patients were women. In 18 cases cortisone was discontinued because of convenience or by choice in order to study the post-hormone state. In a few of these cases treatment was resumed.

Duration of Remission.—Just as the benefits during treatment were usually gratifying, so the difficulties after prolonged treatment with cortisone were very disappointing and very discouraging to the patient and physician alike. These events need to be carefully studied (Table 3). In only 17% of the patients was the significant improvement that occurred during treatment maintained longer than 60 days after cortisone was withdrawn. In many of the patients relapse started when the daily dose was reduced below 50 or 25 mg. daily, in many others relapse began early in the post-hormone period. Within 60 days after treatment relapse to the pretreatment level had occurred in approximately 83% of the patients. It is thought that the small percentage of patients who continued improved after withdrawal of cortisone did so because natural changes of improvement occurred during the use of cortisone and continued long after discontinuance of the hormone, rather than because of any curative effects of the steroid.

Relation of Residual Benefits to Stage of Disease and Length of Treatment Period.—We were particularly interested in two groups of patients. It was hoped that if treatment with cortisone were begun early in the disease and continued for many months, the arthritis might continue suppressed after the hormone was withdrawn. Only two patients of the group had early disease; in both relapse occurred promptly after cortisone was withdrawn. Also, it was hoped that the longer treatment was continued, the more likely improvement would be prolonged after the hormone was discontinued; but relapse occurred as often in those patients treated 200 to 370 days as in those treated 100 to 200 days.

Temporary Suspension of Adrenal Function.—As was anticipated, after cortisone had been administered for a long period and withdrawn, there was indication that the patients' adrenal function was suppressed. This was shown in 40% of our patients by less than normal lowering of circulating eosinophils after corticotropin stimulus (Thorn test), by mild lowering of blood pressure, and by muscular weakness. But in no instance was this a clinical problem in these patients, and recovery of normal adrenal function occurred after two to six weeks.

TABLE 3.—*Post-Cortisone Events in Twenty-Four Cases*

	No. of Patients	%
Improvement maintained 60 to 190 days	4	17
Relapse to pretreatment condition	20	83
Within 10 days	6	25
10 to 20 days	8	33
20 to 30 days	4	17
30 to 60 days	2	8
Temporary hypoadrenalism	10	40
Severe "withdrawal syndrome"	5 *	21
Edema	3	12
Hip fracture	2	8

* Four women; one man.

Edema.—There were three instances of edema developing after treatment during which little or no edema had occurred. Two elderly men fell during the post-treatment period and fractured a hip. It is thought that weakness and clumsiness in walking during this post-hormone period accounted for the falls. The injury was sufficient to cause fracture of bone with average calcium content; weakening of the bone from calcium loss due to hormone is not considered to have contributed to the fracture.

Withdrawal Syndrome.—A most distressing illness occurred in 21% of patients after withdrawal of cortisone. This illness, which we call "post-cortisone-withdrawal syndrome," is characterized by severe relapse of the arthritis accompanied by disproportionally severe weakness and stiffness—greater than had been experienced previously—marked fatigue, anorhexia, mild hypotension, and a sense of great discouragement and depression. These patients were miserable; they usually stayed in bed for days or weeks and required assistance for most everything. The condition sometimes lasted longer than the indications of suppressed adrenal function and the bolic changes in connective tissue during the inter adjustment to the withdrawal of cortisone. Many of special therapy were tried but none were fou value in combating this "withdrawal syndrome. syndrome always subsided after two to eight wee some of the patients felt more ill than they had eve with the arthritis, and therefore volunteered that th not wish cortisone used again. Note that four of t patients who had this "withdrawal syndrome" women.

Emotional Readjustment.—Another troubl post-treatment problem was the necessity for the to adjust again to living with his disease, and t very difficult for some to do. We have long been im with the value to the patient of having a good phil of living with chronic arthritis. We have found this has been acquired, and the patient is then "holiday" from his disease by use of cortisone, it very difficult for him to adjust again to the post-tr worsening.

COMMENT

When cortisone is to be withdrawn, a slow re of dosage is advised whenever possible; for the me endocrinologic, and psychologic adjustments a better and more easily than following abrupt c If the latter is necessary, the patient risks serious because of suppression of adrenal function fo weeks, if a "stress" situation, such as a surgical op requires "adaptation." Fortunately, we encoun such circumstances, although the shock which from massive hemorrhage was difficult to manag

Our experiences with the method of prolonge cortisone herein reported cause us to feel th therapy is not practical for all patients with rhe arthritis. A better score for the favorable alter the disease is desired for any prolonged treatmen entails the risks during therapy and the potentia unfavorable events after cessation of treatment form of therapy affords. In further studies differe ment programs employing cortisone may be fou suitable than the one we employed; combina steroids may prove advantageous.

To obviate post-cortisone problems the indefi longed use of cortisone has been suggested, but not be a practical solution, because antirheumati from cortisone requires an excess of cortiso replacement of a deficiency. Hence it maintains degree of hypercortical adrenalism. No disease k the authors has been successfully managed for a nitely prolonged period by the production and nance of a hyperendocrine state.

Investigators realize the great possibilities for this powerful hormone in the treatment of rhe arthritis. Never before has such a potent antirh substance been available, but we need to kno how to use it. We think results indicate that our prolonged cortisone therapy is of value for a group of rheumatoid patients for a definite purp not for routine use for all patients with rhe arthritis. Although we are disappointed in the lin of this form of prolonged cortisone treatment, t discontinued interest in or use of, cortisone for eumatoid arthritis. But we feel that search for a more tisfactory and practical treatment program employing is or related steroids must continue.

CONCLUSIONS

Based on our experiences with prolonged use of cor-one in patients with rheumatoid arthritis, as we have ministered it, the following conclusions seem justified: many patients a good partial suppression of the disease n be maintained on 75 mg. or less of cortisone acetate, ally, daily. Usually this amount of the steroid is toler-d well; numerous minor undesired effects which may cur can usually be corrected or controlled, so that rious complications are infrequent. Treatment of 14% our patients, some receiving larger doses, had to be scontinued because of serious complications. These re more frequent and more severe in female patients. large amounts of cortisone acetate are required daily, e problems of hypercortisonism may become serious; erefore we prefer not to use cortisone as maintenance atment if more than 75 mg. is required daily.

Just as we have been pleased with the benefits of cor-one during its use, we have been very disappointed in e post-cortisone events. Relapse in 83% of patients, cluding those with arthritis of less than 6 months' dura-n, even after treatment for as long as a year; severe "withdrawal syndrome"; difficult post-cortisone readjustment to the worsened state of the arthritis—all these facts detract from the benefits of cortisone and diminish the enthusiasm initially held by patient and physician, for its prolonged use.

There is no evidence that the course of the arthritis is ultimately altered favorably by prolonged cortisone therapy as we used it. We do not consider cortisone practical as routine treatment for patients with rheumatoid arthritis, nor do we consider it adequate treatment in itself. Rather we choose to use it for a definite purpose such as to check rapidly worsening disease, or to facilitate physical therapy and rehabilitation. Whenever cortisone is employed, troublesome effects must be expected in some patients, and the physician should be prepared to meet them.

Initially we were concerned chiefly with the questions: 1. Can cortisone be tolerated for long periods by patients with a chronic illness? 2. Will it be beneficial? Now, 18 months after extensive trials, we are more concerned with the question: Will treatment with cortisone be worth while for this patient? We know we must consider what will happen not only during its use but also after the hormone is discontinued. Studies are continuing to clarify further remaining problems.

321 E. 42nd St. (Dr. Freyberg).

PLAN FOR RURAL MEDICAL SERVICES

George F. Bond, M.D., Bat Cave, N. C.

I should like to express my thanks for having the portunity to meet with this interested group in con-leration of the many aspects of rural life in the United ates today. The whole tone of this conference is serious, d that is as it should be for we are seeking means of proving the lot of more than half of our national pop-ation. The problems which are being discussed at this nference are vital to each one of these people, and it our duty to render the most complete and satisfactory dgments of which we are capable.

I am not sufficiently well informed to answer many of e questions which can be raised today with reference the medical care of our country people. At best I can ly survey these problems sketchily and in the time lowed today give you a summary of how a single rural mmunity faced and solved the problem of expanding own medical facilities. It is possible that in examining me of the facts which have been established by our periment in rural medicine we may reach some over-all nclusions which will help us in similar planning on a ationwide basis.

I should like to take a few moments to tell you some f the story of the growth of medical facilities in Bat ave, N. C. This collection of communities covers an rea, all of which is mountainous, of about 500 square iles, containing a population of about 6,000. The fami-es are widely scattered and until recently were without nedical services. The nearest medical facility is about 18 miles from the center of the territory. Road development was and is poor, electrification of the area is meager, and telephone facilities are only recently coming into existence. The general population is best classified as a farming population, and the average annual income is remarkably low.

On completion of internship, I elected to start general practice in this area, since I wished to do a rural practice and could find no locality more clearly in need of medical services. For about three years I maintained an office practice in Bat Cave and traveled a distance of 18 miles to the nearest hospital for surgery and treatment of those patients who required hospitalization. I found that I was driving about 175 miles a day, usually in a jeep, and that a 20- to 21-hour day was the rule rather than the exception. I found too that I was frequently being forced to practice bad medicine because of the lack of nearby hospital facilities and the element of sheer fatigue. This prompted me to increase the facilities in my small office to the extent that I was able to do some minor surgery and a few deliveries within the building. It was soon obvious that there was a very genuine need for a small hospital located approximately in the geographical center of the region. Neither I nor any of the people in the

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From the Committee on Rural Health of the American Medical Association.

Read at the Sixth National Conference on Rural Health, Memphis, Feb. 24, 1951.

scattered communities had had training in planning a hospital, but since it seemed to be needed, we had no doubt that the job could be done.

After selection of about 20 respected and hard-working men from all parts of our region, a meeting was called, the need of a hospital discussed, and preliminary plans made. It was agreed first that the group, which had been largely self-chosen, would be the original Board of Trustees of our nonprofit community hospital, and since many of them had been chosen for their abilities to organize construction details, it was understood that this building board might later replace itself with a group better fitted for the operation of the hospital after its completion. Realizing that it would be impossible to raise any substantial sums of money in our relatively poor community, we resolved to obtain, whenever possible, materials and labor for the project free of charge. Thus, each member of the board was allotted the project of obtaining a certain amount of lumber, rocks, hardware, and man power, and a preliminary period of locating and assessing the available materials was allowed. During this time we had a rare stroke of luck, which I believe may well be repeated in other communities. There was located in the center of our region an excellent schoolhouse of fire-resistant structure with approved water and sewerage systems which had been abandoned about 3 years after its construction and had lain idle for about 20 years. This spectacle of abandoned schoolhouses is ommon in rural areas as a result of school consolidation throughout the United States. With some maneuvering we were able to purchase the building and its grounds at open auction, where all other bidders were tactfully discouraged from competitive bidding. The entire structure and its grounds were purchased for the sum of 1,500.00, and the cash for this purchase was given by benevolent organization of a nearby town. Thus, we had the outer shell of a structure which was to become our community hospital. The building was roughly 100 by 50 ft., and during a few days spent with a friendly architect, we produced the floor plan and specifications of a 12-bed hospital within its walls. At our next meeting of the board the bill of materials for construction was parceled out as evenly as possible among the members of the board, the total hours of manwork needed were estimated and allotted, and the cash requirements were estimated as closely as possible. Preferring not to delay construction until such time as all materials, man power, and required money had been stock-piled, we elected to start on a shoestring and depend on the good will of the community and the enthusiasm of the workers to carry the job through. Within a period of nine months, through the most concerted community effort imaginable, the school building had been remodeled into a hospital, filled with equipment which was purchased at a low auction price from a defunct hospital, and made ready to receive patients. This was done at a total cash cost of slightly less than $15,000.00, or approximately $1,200.00 per bed, as opposed to prevailing cost estimates of $14,000.00 per bed for hospitals. The hospital is designed as a general hospital and has so far satisfied all necessary requirements in this regard. It was estimated that the 12-bed capacity should be sufficient for our region in view of the low utilization of hospital beds by most r
populations. Until very recently this has proved to b
sufficient number of beds for our purpose. Our nur
staff was recruited from nearby communities and w
composed of two registered nurses, two licensed practi
nurses, and girls whom I was able to train person
The remainder of our professional staff was made up
local people, all of whom had been with me for a y
or more of preliminary training. We opened our hosp
with no surplus in the bank and within a few months we
quite satisfactorily in debt. With the faith and assista
of the community and by hard work, we were able to
ourselves out of the red without sacrificing our resolve
treat all charity patients within our territory. So mu
then for the establishment of our hospital.

What work has been done in this hospital to jus
its existence? This in round figures is the record of
hospital over a two-year period of time: 10,000 o
patient visits; 500 surgical procedures; 400 fractures
duced; 600 accidents treated; 270 live births; 1,000 i
munizations; 18% free days of care to inpatients; 20
free care to outpatients; 12,000 laboratory procedu
performed; 1.5% newborn death rate; 0 maternal dea
0.1% surgical death rate; pediatric death rate, 3 dea
out of 600 admissions; medical death rate, 9 deaths
of 800 admissions; 3% referral of inpatients; 5%
ferral of outpatients; average patient stay in hospita
days; average occupancy, 9 patients.

These gross statistics seem to me to point out sev
important facts. With reference to the over-all statistic
figures of medical care, it can be seen that it is poss
in a year's time to give a very considerable amoun
service to the population which we supply, with ger
figures of mortality which compare quite favorably
almost any large hospital in the United States. I th
these low mortality figures do not give evidence of
perior medical treatment so much as they show that
patients are seen early in the disease process. It is
also that the turnover in terms of average stay o
patient is considerably less than that of most hospit
This is as it should be, since a rural hospital can
serve as a convalescent home but rather is able to p
vide only the most urgently needed medical servi
Note that the volume of outpatient work is tremend
considering the size of the hospital. This has been a m
factor in sustaining the economic life of the hospita
means also that all the outpatients in the area are
mately acquainted with the hospital through daily c
tacts so that they have come to regard the institutio
the natural location of all desired medical facilities.
proportion of patients referred either from the outpat
service or as inpatients is not as great as it should be;
when one considers the geographical and financial d
culties of referrals among our country patients, t
figures will be more readily understood. It must be emp
sized that the statistics given for this hospital repre
about 98% of all the medical care received by an
the residents within our 500 square-mile area. Loyalt
our institution is characteristically good, and thus
figures reflect quite accurately the incidence of illness
hospital conditions found in this area. It might be fa
said that if no medical facilities were available in

gion a large proportion of our sick patients would urney to a distant location to receive the same care hich today appears in our statistics. This may be true, it I am not convinced that a very large proportion of ir population would consistently travel distances of 18 20 miles for ordinary medical care. This has not been e case in years past, and I see no reason to expect such performance from the rural people in other localities the United States. If facilities are reasonably available, ey will be utilized; but if ordinary medical care inolves traveling long distances, uncertain financial arngements, and treatment in unfamiliar surroundings, I not believe that we can expect the majority of our untry people to seek medical treatment as often as cessary and as early as is proper. Finally, I believe that e statistics of our hospital indicate the one thing which stifies construction and maintenance of such a facility a rural area capable of supporting it. It is that we may certain that this hospital has been utilized to the fullt extent by the population which built it and owns it. his evidence of loyalty and general satisfaction is all at any hospital could require for continuing successful nction.

So much for the records of our hospital. I believe, as some others, that this record stands as fairly conncing proof of the value of a tiny rural hospital. We ive reached a cross road of opinion today on this queson. Most hospital administrators, whose training in the eld of small hospitals has been largely neglected and hose knowledge of the medical conditions which obtain nong country people is markedly deficient, will persist maintaining that any hospital under the 50-bed size a waste of time, energy, and finances. If we are to refute is misconception, it must be done soon, and I am connced that it can only be done by a study of actual orking records of small hospitals which are already nctioning. It is true that there is a great danger of ilding too many of these units and of locating some them in areas which cannot possibly support them. will take only a few mistakes in this line to set back e entire program of rural hospital construction a full cade. For this reason we must be extremely cautious the planning of a rural hospital system, and it would rtainly be better to have a small number of such units hich would prove their worth than to have a multitude white elephants.

So far I have considered whether or not a rural hostal is worthwhile and some of the factors involved in e construction of this unit. I have not mentioned the ost important item, the medical staff. A hospital withit a staff, albeit a one-man staff, cannot hope to function a hospital. Therefore, country physicians are needed staff these institutions. There is a severe shortage of ountry physicians, and the situation seems even worse hen it is reflected that only a small proportion of the en now practicing country medicine are trained to erve as a one-man staff in the units which have been escribed. This is not to be taken as a reflection on the bility of our present country practitioners but rather as n indictment of the system of medical training which btains in America today and of the system of practice hich does not permit the older country physicians to naintain adequate contacts with the newer precepts of medical practice. It is all too well known today that the average general practitioner is not prepared to practice the full range of medicine. The country physician required for a tiny rural hospital must be trained to do adequate obstetrics, general medicine, and to perform satisfactorily those surgical procedures which he will be obliged to do. It would seem to me that these are not impossible requirements for graduates of a grade-A medical school whose internships and residencies have been properly planned. Perhaps in our age of specialization we have overlooked the fact that a proper medical education necessarily embraces all of the fundamentals of medicine, surgery, and obstetrics, and that it is only through neglect or improper direction that a general practitioner is unable or unwilling to continue his training in all major branches of medical practice after he ceases his primary medical schooling. It will serve no purpose to deplore the preparation of our general practitioners today. We must recognize that unless we are willing to improve the training of our medical graduates and to direct them specifically in many instances to a complete general practice, there will be no need for the construction of rural hospitals since they cannot be staffed. These are facts, and no matter how harsh they may seem, they must be accepted and utilized if we ever hope to make progress in the field of rural medicine. What is the answer? The answer lies in the proper selection of a certain percentage of all admissions to medical schools on the basis of residence, previous training, and whether or not they wish and intend to practice rural medicine. Given a reasonable segment of such admissions, we must continue with a well-integrated plan of instruction in the general practice of medicine throughout all the years of the medical curriculum. Next, we must make available a large number of two- or three-year rotating internships tailor-made for rural practice. It is said that a genuine need will inevitably produce the desired end product. There can be no doubt of the need of properly trained rural practitioners; and it is devoutly hoped that the means by which these men may be trained will be shortly forthcoming.

Finally, if we secure the proper physician and provide him with adequate hospital facilities, we must attempt to establish an environment for this man which will encourage and improve his work, prolong his life, and make easier the lot of his successors. This is the responsibility of the community. In my lifetime I have seen the "grass roots" theory of community responsibility and growth fall to the lowest ebb in American history. This situation is perhaps a natural outcome of our recent national philosophy of consolidation, centralization, and total national security. No matter what else this state of mind produced, it certainly resulted in a temporary stagnation of collective community effort, and since the welfare of our nation is based not on the larger centralized portions of our civilization but rather on its tiny collective units, this trend has been disastrous. But it seems to me that lately there has been a renaissance of individual and group spirit. It is almost as if members of our rural communities suddenly awakened to the fact that they would perish if they did not return to old fundamentals of growth. In the last few years we have seen a tremendous resurgence of activity in our small-population groups, a reassertion of the pioneer spirit which built our country and has kept it strong. It is on this spirit and the known ability of communities to help themselves that I put my faith in the future of rural medicine. I am convinced that once a community sees the necessity of proper medical care and has bent its energies to the construction of facilities and to the acquisition of a physician, that same community will teach itself how to care for the very facilities which it has built.

Many of the medical habits which our country people must learn will seem unnatural and certainly will be difficult. They must understand that their physician can be a complete family physician although his practice does not permit him to travel at any distance from, or be for very long out of touch with, the community hospital. Our people must learn that the best medical care they can receive will be in the local medical center and that almost no one is too sick to be transported to these facilities. They must accept the fact that the days of long home calls, home deliveries, and home surgery are over and that it is only through the full utilization of the hospital which they themselves have built that these facilities will justify their existence. Finally, our country people must learn that it is within their power to kill their physician by abuse of his time and by lack of consideration of his needs for rest and occasional recreation. This sounds very much as if I were trying to inject into the pattern of country practice all the elements of the life of a city specialist. To a certain extent this is true, but I do not believe that these means of protecting the country physician and his workshop will in any way lessen the close familiar contact of the family physician with his people. It is this problem of community consideration which can best be nderstood by the representatives of rural life gathered e today, and it will be their task to aid in the useful cation of communities which are ultimately to receive oper medical care.

A word should be said about financing the rural hospitals the construction which I propose. Although I believe that modification of the construction and equipment standards which will be possible in these hospitals will result in lower over-all construction costs, it would be foolish to anticipate maintenance expenses lower than those of the larger city hospitals. When it is considered that fair salary requirements, high levels of charity care, and piecemeal purchase of equipment and expendables are all major factors in the story of hospital maintenance, it will be understood that an average figure of about $12 per day will be the cost of keeping a patient in a rural hospital.

Since these hospitals will be established in areas where the average per capita income is low, we must expect an operating deficit which will probably amount to about $600 per bed per year. This deficit can be met in part by regular subscribed assistance from the community which is served by the hospital and by a more satisfactory system of contracts with the welfare agencies for the care of indigent patients. There should also be some carefully controlled system of subsidies designed primarily to make up maintenance deficits of these units. These subsidies need not be large and certainly must be controlled at a community level, thus offering no opportunity for bureaucratic interference in the management of the unit; they will, nevertheless, be necess should be anticipated if the scale of rural hosp struction reaches the desired proportions. As a working figure, I should estimate that from c to one-half the deficit could be met by the comm and the balance could be wisely proportioned b county, state, and Federal government, with due p tion against unnecessary control.

If we then accept, as I do, the necessity of the con tion of adequate workshops for country physici the form of tiny, rural hospitals, we must exami means by which these *hospitals* can be establish maintained in our rural communities. I would s *that in the majority* of cases the wisest procedure be to establish regional health councils designed to a given population and/or geographical area, b necessarily limited by county lines. This health co representative of the major components of org rural life which have already been described, cou isfactorily survey the area within its jurisdictio make a wise decision as to the need of a rural ho for its people. It is to be emphasized that if the rural practitioners within the region surveyed health council, they should be carefully integrate the body of this council and their advice respecte physicians who are already established in rural could serve as spark plugs for hospital constructi could give valuable advice with respect to fa needed for their area. These same physicians shou be invited to determine the need for *specialist con* service to the hospital and must assist in all phase planning. It would not be wise in any locality community or the health council to proceed ind ently on a program of hospital construction with complete sympathy of the local physician or phys I stress the necessity of integrating the advisory s and good will of local physicians with any prog rural hospital expansion because I have seen in too *instances the barriers which can be set up* if ad qualified persons is ignored and antagonisms a Such a situation is neither to the credit of local pra physicians nor the health councils but unfortunate exist unless a carefully coordinated plan is follo must be understood that the future staff of the rur pitals may at first be comprised of men who have practiced medicine in the country for some len time. The wisdom and abilities of these men mu be ignored if the projects are to be satisfactorily pleted.

And now finally, despite my personal enthusia projects such as I have described, I must offer strong note of warning. It would be far wiser to lish the first hundred or so such hospitals in very situations, carefully prepared as regards constr details and complete future maintenance, than t bark on a program of haphazard hospital constr which will result in the eventual failure of some units. We must all appreciate the fact that it take a few failures in a plan of rural medical service the entire program back by a good many year since the plan described here is of a revolutionary opportunity should not be afforded for unjust cri

his can be avoided by the application of common sense
nciples. I would advise the careful location and estab-
ıment of a mere handful of prototypes of these country
;pitals in each state. These would serve as experi-
ntal laboratories to determine the eventual criteria by
ich we might round out a national plan. In this way,
ıough we would proceed slowly, our progress would
sound and would be based on the grass root principles of community expansion and improvement. It is on these principles that most of our enduring community assets have been established in the history of the United States, and by proper evaluation and utilization of community effort, we may hope to see the return of the country physician and the perpetual establishment of necessary rural medical facilities.

Bat Cave.

EVEN PHYSICIANS DIE

John Alan Appleman, J.D., Urbana, Ill.

[he term "estate planning" is not preferred by experts.
ıtate analysis" more accurately imports a study of the
blems involved in any personalized situation—the
n is the solution resulting only from intensive study.
: physicians are, perhaps, the poorest examples of
structive planning. They complain about taxes—yet
y do everything possible to throw their income and
ıte taxes into the highest possible brackets, with no
nd thought as to how to reduce them. Inevitably, they
in need of sound investments, but they seek no expert
ısultation and invest in almost any proposition ad-
ıced by a smooth promoter. They fret about their
'es' lack of sound business judgment, yet make no pro-
on for the solution of financial problems which are
tain to arise on their deaths—leaving widows with
ny headaches, little experience, and every opportunity
losing their security to the first slick-tongued salesman
o comes along. Physicians talk about possible retire-
nt but make no intelligent financial plans for the
ure.

[he typical picture of a young physician in these days
ıomewhat as follows. Young Dr. Jones, somewhat to
surprise, finds his patient list mounting rapidly. His
sonal friendships expand also, and the new friends
ıally are people who are also young and rapidly be-
ning successful. To entertain, and to have the swim-
ıg pool available for the family, Dr. Jones joins the
ıntry club. It is inevitable that the old Ford is traded
on a Buick—then young Dr. Jones needs another car
:ause the Buick is usually at the club or needed to pick
the baby sitter. Now the second child is about due, so
and his wife look about for a larger home. But all
: better houses seem to be two-story structures, and
:y are attuned only to a ranch style. So Dr. Jones buys
ot in the new subdivision near the club—perhaps he
n get in a few holes of golf after dinner. Then he has
me plans drawn for a modest residence. The cost is
:imated at $25,000; the building costs $42,000 when
mplete.

At this point Dr. Jones begins to do some serious think-
g. He goes over some figures. He now has $6,000 in the
', $42,000 in the house, $2,500 in architects' fees,
',000 in landscaping, and $6,500 in furniture, carpet-
g, and drapes. That totals around $60,000, which is
ırtly paid from his savings and the balance represented
/ a bank loan. Also, Dr. Jones has $4,000 invested in
ıtomobiles. He begins to figure worriedly that he has
ı establishment to maintain, large monthly expenditures to meet, and as yet has not invested a cent in any type of retirement program or life insurance.

Perhaps by sheer coincidence a life insurance salesman catches Dr. Jones in that mood. Whether the resulting sale is $25,000 or $100,000, whether it is 10-payment life insurance or ordinary life insurance depends on the conscience of the agent. His customer, the physician, has no conception of the type or amount of life insurance he should carry.

Now Dr. Jones begins to relax mentally. The monthly payments may now be even heavier, with the insurance program, but his clientele is steadily increasing. At this point a pressing desire gnaws at him. He begins to think how pleasant it would be to make money a little more quickly, to relieve any anxiety resulting from financial pressures. Some friends of Dr. Jones are going into a syndicate to drill a wildcat oil well. He invests $3,000. He goes down to watch the operations. The sands are promising. The big night he stays up until 2 a. m. to watch the well brought in. Then, suddenly the driller turns, shakes his head. It is a dry hole!

Dr. Jones drives home, somewhat discouraged. He had not really thought it could miss. Somehow he had envisioned only the royalty checks and not the possibility of failure. This has cured him, Dr. Jones thinks. And perhaps it has cured him of wildcat oil operations; if so, it was a cheap experience. But surpluses and their management continue to cause him disquiet. The thought of leaving money in a bank account to earn no dividends is unattractive; in addition, continuing inflation, he realizes, diminishes the value of his dollar savings. So Dr. Jones learns of the stock market. He establishes an account. In the meantime he finds an attractive farm—only $400 an acre, and he enters into a contract to buy it.

But, suddenly, one day, Dr. Jones feels a little faint. Disturbed, he takes his own blood pressure. His closest friend, a cardiologist, is pleased to see him, then alarmed by the anxiety he sees in his visitor's face. Tests and consultation follow, with the advice to take life easier, to relax more, and to reduce or eliminate those night calls.

But Dr. Jones now has forgotten how to relax. Not only does he now worry about the cardiac condition; he begins to worry about his obligations. There are the insurance payments to meet—no one had thought to suggest a waiver of premium provision [illegible] ility to him, or perhaps he had rejec [illegible] as [illegible] exp
But now his family
living. There are

tract payments to meet on the farm. Of course, overhead expenses for the office continue monthly and income taxes must be paid on his net income. There seems to be no escape; Dr. Jones feels that he must continue to work until some day Mother Nature puts an end to his labors.

This example could be complicated with a sudden depression, shrinking Dr. Jones' stocks and farm values. But Dr. Jones has complicated it enough. Suppose he should die now. Every asset—including the house, cars, farm, securities, and life insurance—will be included in the amounts forming the basis of his estate tax. Dr. Jones did not figure on that. They told him that if the house and farm were held in joint tenancy, they would go directly to his wife—that his life insurance was not a part of his estate at all. But they forgot to tell him that the tax man included in his computations all of these joint tenancies and the life insurance. So the life insurance, which young Dr. Jones had tied up to provide for the education of his children, may well conclude with a tax lien against distributive shares, and his widow, whom he thought had ample security from the other assets, may be forced to sell the securities, farm equity, and house at depressed prices to pay administration costs and taxes. She may be left penniless.

If this causes the reader discomfort, it is because it strikes too close to home. Such a picture is typical of the majority of physicians—some of whom survive to experience a few of these headaches, others of whom leave these problems to widows and heirs. Because of these acute taxation and personal problems, the field of estate analysis has come into being—a specialty combining elements of taxation, will review, trusts, investments, insurance, and many other phases of law and business. The physician will not find his solution in a simple will drafted by his family lawyer, or in the elementary suggestions of his income tax accountant. Even as he would refer neurosurgery patients to one competent in that field, he must himself consult a specialist.

What is involved in an estate analysis? The simplest definition of an estate analysis is that it is the making and analyzing of an inventory of a given person, his material and financial accomplishments, his powers, talents, and responsibilities, his aims and directives in life, and his spiritual desires. The assembling of that material constitutes what is called a "plan foundation," "data sheet," or "inventory." The second step involves the analysis of this material and the shaping of the vast amount of data into a theory of procedure which will solve the problems presented. The third step is the drafting of the instruments which place the estate plan into effective operation.

In order to accomplish these steps, complete cooperation of the client—let us assume in this discussion he is a physician—is required. It may require two weeks of the client's time, scattered in driblets of a half dozen conferences, considerable personal intensive thought and self-analysis, the compiling of materials and documents, scrutiny of the instruments prepared by the analyst, and like matters. A physician may begrudge the time necessary, but many a businessman may begrudge the convalescence following the removal of a brain tumor. He was given no choice; the thing had to be done. Here the analyst must have cooperation if he is to do that which is required.

In order to prepare a proper estate analysis fo
client, complete information must be secured b
estate analyst with the general assistance of the phys
and possibly his accountant, family attorney, inves
counsel, and life insurance underwriter; many o
sources of information may have to be contacted. M
of the information required can be secured from a
sonal examination of the physician's life insurance
cies, deeds, personal income tax returns, and the bal
sheet and tax returns of any business in which he ma
collaterally interested, without unduly burdening
with duplicative details. But whatever source may be
ployed prior to completion of the analysis, complete
is required. Such data includes complete personal i
mation concerning the physician, his wife, and e
member of the family and their expectancies, inclu
information concerning his and his wife's parents.
is vital for the preparation of any will or trust instru
and helps to give the estate analyst all pertinent f
data.

A complete analysis of the physician's assets an
come must be made, including the nature of each
of property. One may even find in this connectio
the physician has homes in different states. This is
important in determining the question of domicil
in considering conflicting and overlapping laws
may apply. As one of the physician's assets, insu
not only life insurance, but health and accident and
erty and liability coverages, must be disclosed. T
insurance policies should be turned over to the
analyst for personal inspection. Only in that wa
detailed information be secured concerning the p
and settlement agreements which are then contai
the policies and wise provision made for any chan
quired or thereafter needed. The insurance analys
show a woeful lack of coverage of specific properti
of various liability coverages, which should be adde
an illustration, the physician may own property wh
used for tavern purposes directly or indirectly, perh
social clubs, thus greatly increasing his hazards.

A complete disclosure of the physician's liabili
required, whether direct or contingent, in order th
vision may be made for the discharge of such oblig
His ordinary expenditures for living purposes,
tivities, membership in social organizations, and hi
tionship to gifts and trusts, whether created by him
his benefit or that of members of his family, must
vealed. A statement of income, assets, liabilities, a
pectancies of his wife, children, and both sets of pa
must be made.

With reference to personal information, as a
any proper analysis, information is needed of the
cian's health both in the past and at the present ti
hobbies, his practices with regard to vacations, a
retirement plans. It has been wisely stated that reti
is not an escape—one must retire to something a
from something. Only by ascertaining the intentio
desires of the physician can provision be made fo
contingencies. His desires in regard to administ
guardianships, and even funeral plans are then s
It the reader thinks those problems insignificant, I
mention that last year I saw a case in which a fam
most came to blows because the son thought his

ould be cremated, while his sister was violently op- sed to cremation. And, lastly, one must prod deeply ascertain the relationship of the physician with his nily and his personal desires with reference to each nily member, his relatives, employees, charities, or any ner subject of his bounty.

While there is no substitute for a personal examination the analyst of the documents, policies, and written in- uments which must be considered, nevertheless there is ll a tremendous task for the physician even with the sistance of the specialist and those who aid him. As- nbling the necessary material may require the physi- n to spend a great deal of personal time, but it is time ll spent. A businessman may spend a week taking an entory of his business once a year. A physician can tainly afford to take a week or more to take an in- ntory of himself. Not only may the result accomplish saving of tens of thousands of dollars in taxes, but it quires the physician to reexamine himself in his rela- nship with his professional associates and his family, redetermine his aims in life, and to see the direction in ich he has thus far traveled.

In addition to the documents which the analyst will pare from his study, whether they be wills, trust agree- nts, deeds, or other documents, it is well for there to a final instrument—one not destined for the eyes of curious public, but one to be cherished by those one ves behind. This is not an instrument in lawyers' lan- age but one in the roughhewn stumbling words which speak the sincerity of the husband and father. For in s instrument, the last contact he will have with his fam- , the decedent can extend a hand of love from beyond barrier of death. In this letter, let us call it, he reas- res those who are suddenly bereaved of his presence, d left feeling wholly helpless, of his enduring love; he nsmits courage to them in simple words, which they y reread over the years—things perhaps that one's ngue might stumble over when one attempts to speak em aloud. And, in this personal message, the physician n pass along his wisdom, the learnings from experience, guideposts, and his suggestions to lessen the hurdles the path of his widow and children. Perhaps his son is t sure whether he wants to be a physician. Schools ange in stature. The physician's alma mater may have pped by the time his son is ready. But the physician can ggest the name of a wise and true friend in his letter om his son might consult about this problem when it ises. To my mind, a sincere message from Dad is as portant as the lawyer's documents, however many ousands of tax dollars the latter might save.

One of the common faults of the American business professional man is that he sets up false goals in life. e works too hard for that intangible thing which we call uccess" or "security"—and primarily for the purpose giving his wife and children more money than is good r them. Sometimes the process of estate analysis re- lls these men to their original purposes in life and rees- blishes the true value between financial and spiritual lationships. Many men, after a self-analysis, begin to lax more; they take more frequent and extended vaca- ons; they learn to train and develop subordinates and embers of their family in the conduct of their business; ey pick up hobbies they had long since abandoned because of the pressure of other activities. They begin to plan for an active and satisfactory retirement, instead of the total cessation of all activity. One client sold his manufacturing business, which he had detested for 20 years, and purchased a small winter resort in Florida, where he will probably live many years longer. Conversely, one of my recent referrals is going to sell two hotels which he owns because "his wife can not take it easy with all that work to be done." People, as physicians know best of all, dig their own graves with their ambitions and nervous drives. The self-examination resulting in the process of estate analysis may be greatly beneficial. Almost without exception, the family of the client profits from his more relaxed attitude, making him a less tense and more enjoyable person to live with.

It is difficult for many men to realize what an insignificant gift money and property are, as compared to the love, companionship, and mental security they have to share when working under lower pressure. The man who does not sleep at night because of the problems on his mind is an unpleasant breakfast companion the following morning. The need for spiritual comfort and guidance is as great in our wives and children as their need for material things.

A few years ago, my daughter made a wish on a star. She asked, "Can I have anything in the world I want, Daddy?" I said, "Almost anything—what did you wish for?" She replied without a second's hesitation, "No more wars." Not money, not a pony—but peace! I felt pretty humble and ashamed of the mess we adults have made of our world, when a child's greatest wish is for no more wars.

Adults have those same tensions. A year ago Justice Robert Jackson was telling me how his hopes for a permanent peace, to grow out of the lessons learned from the trials of war criminals, were rapidly fading. Our wives and children have a vast mental insecurity caused partly by this problem of war, atomic bombs, and bacterial warfare. They have other tensions and conflicts raised by their relationships with other people, even by the mere problems of growing older. When the man of the family is dead, there is no one to share these problems, to smooth over their troubles, to give them strength and comfort. But if this man is so engrossed in his business or profession that it consumes his entire energies and time, then to his family what difference does it make if he is living or dead? He has abandoned their lives for a wholly separate one in which they have no place.

Omar Khayyam once well expressed it when he said, "The bird of time has but a little way to flutter and, lo, the bird is on the wing." The work of estate analysis is as much concerned with the art of successful living as it is with plans for death. The song which was so popular a year or so ago, "It's Later Than You Think," has a latent philosophy that some of us should not only recall to our clients and patients but to ourselves.

Perhaps the field of estate analysis might be summarized by saying that it is, first, basically a philosophy —a philosophy both for living and for death which works to solidify the relationships existing between a man and his family and to provide for the family's comfort after his death, but without destroying them as persons. Second, estate analysis involves a financial or investment problem of solving the questions of economic security with minimum hazard, bearing in mind both retirement and death and the usual errors made by professional men trying to realize such objectives too quickly. Third, it involves family security in guarding against the inexperience of widows or young people in investing funds realized from inheritance, when deprived of the wisdom of the deceased. Fourth, estate analysis involves the reduction of administratio penses, estate, inheritance, and income taxes to th est possible sums consistent with sound planning— may save many tens of thousands of dollars. Fifth, i quires sound administration provisions to anticipate solve problems which inevitably will arise and to re the hardships incident to one's family on one's deat

Doctor, what plans have you made?

1314 W. University Ave.

COLOR TELEVISION AS A NEW MEDICAL-TEACHING AID

REPORT OF TWO AND ONE-HALF YEARS' EXPERIENCE

Kendall A. Elsom, M.D.
and
G. Frederick Roll, Philadelphia

Medicine was the first of the sciences to benefit from color television as a teaching aid. Its application in this field first took place in 1949 at the Annual Session of the American Medical Association in Atlantic City.[1] In the two and one-half years which have elapsed, 28 programs have been presented before medical audiences in this country and in Europe (Table). Over 200,000 physician isits have been made to these programs. The response of audiences to the medical color-television programs has left no doubt that this new medium can no longer be regarded merely as an interesting novelty but must be eriously appraised as a development in teaching which, though only partially explored, possesses far-reaching dvantages.

In an effort to assess the future of color television in medical education and to gain a more specific conception of its special uses, limitations, and ultimate possibilities, it seems wise to review the experiences of the first two and one-half years of its employment.

HISTORY OF USE

The use of black and white television in teaching medicine and surgery apparently was recognized as a possibility before World War II, but the first formal program in this medium was not presented until the winter of 1947, when at the Johns Hopkins Hospital five operations were transmitted by television to receivers in classrooms during a meeting of the Johns Hopkins Medical and Surgical Association.[2] Later in the winter of 1947 a television program was presented at the Cleveland Clinic in connection with a postgraduate course—this program having been an outgrowth of preliminary experiments with this method of teaching begun in institution as early as 1946.[3]

The next recorded use of television on a medical gram occurred in May, 1947, when a symposium cancer of the stomach was televised from the Creig Memorial St. Joseph's Hospital in Omaha to an adj hotel.[4] The American College of Surgeons included vision in the program of its Congress in New York in September, 1947, during which a variety of su procedures was transmitted from the New York Ho to the Waldorf-Astoria Hotel. At the 1948 Annua sion of the American Medical Association in Chi a television program was transmitted from the Pass Memorial Hospital under the sponsorship of the N western University Medical School and was receiv the Navy Pier and in several hotels in downtown cago.[5] In October, 1948, a program was transm from the Hospital of the University of Pennsylva nearby Convention Hall as a part of the annual m of the Medical Society of Pennsylvania. Later in television was again employed at the Annual Co of the American College of Surgeons held in Los A and at the Clinical Session of the American M Association in St. Louis.

It became obvious from these early monochrom vision programs that in order for this medium to a its fullest usefulness as a teaching aid color was a sary addition. Various methods for introducing were then in the developmental stage in the tele industry. Consequently, in the fall of 1948 Smith, and French Laboratories discussed with the Res and Engineering Laboratories of the Columbia B casting System the possibility of manufacturing television equipment adapted for hospital use. As sult, a color-television camera and camera chain especially built by the Research and Engineering oratories of the Columbia Broadcasting System color receivers were built according to Columbia B casting System specifications by the Zenith Radio C ration in cooperation with the Webster-Chicago C ration. This equipment, owned by Smith, Klin French Laboratories, has been used in all of the

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[1] Television at Atlantic City Session, editorial, J. A. M. A. **140**: 1099 (July 30) 1949.

[2] Trimble, I. R., and Reese, F. M.: Use of Television in Surgical Operations, Bull. Johns Hopkins Hosp. **81**: 186, 1947. Hague, J. E., and Crosby, E. L.: Television, Newest Aid in Teaching Surgery, Mod. Hosp. (No. 4) **70**: 65, 1948.

[3] Ruedemann, A. D.: Use of Television in Medicine, Cleveland Clin. Quart. **14**: 145, 1947.

[4] McCarthy, H. H.; McGuire, L. D.; Johnson, A. C., and Gatewood, J. W.: Telvision in Medical Teaching, Hosp. Progr. **29**:5, 1948.

[5] Carroll, W. W.: Medical Television, Quart. Bull. Northwestern Univ. M. School **23**: 207, 1949.

elevision programs subsequently sponsored by them. In reparation for the initial program, the equipment was iven two weeks of preliminary testing in the Hospital of he University of Pennsylvania in May of 1949 and then nstalled in the Atlantic City Hospital and Convention Iall, where it was first used at the 1949 Annual Session f the American Medical Association. The reaction of ne large audience at that meeting indicated that, rather nan being a mere novelty, color television possessed reat potentialities as an educational medium. As a result, it was included on the programs of a number of nedical meetings throughout the country.

EQUIPMENT AND PERSONNEL

The equipment used employs the field sequential type f color television authorized by the Federal Communiations Commission for commercial color-television roadcasts. It consists of a single camera, control nd audio-equipment, and 20 color-television receivers. 'he camera was made spark-proof in order to insure afety in operating rooms. A built-in dolly enables the amera to be moved easily, and by virtue of its position n a 6-ft. boom it can be placed in any desired position n relation to the subject being televised. The receivers mploy a 10-in. tube with a magnifying lens capable of roducing a picture approximately 12 by 14 in. in size. Vith a picture of this size as many as 50 persons can be ccommodated at each receiver. The transmission of the rograms in almost all cases has been over a closed circuit by microwave radio relay.[6] If tall buildings or ther obstructions exist between the transmitting and eceiving points, the signals are redirected from some ntermediate point. Where the distance between the transmitting and receiving sites has been less than ¼ mile, transmission has been accomplished through a coaxial cable. At the 1949 Clinical Session of the American Medical Association, held in Washington, D. C., the color-television program was transmitted from Johns Hopkins Hospital in Baltimore—a distance of some 40 miles. To insure quality of reception at this distance, the signals were amplified at a point halfway between the two cities.

Ordinary operating-room lights are adequate for televising surgical operations, although it is occasionally advantageous to supplement the overhead lighting with one or two portable spotlights. When medical clinics are televised in color, two portable banks of fluorescent lights provide diffuse lighting.

Three technicians are needed at the transmitting site —one man each at the camera, control panel, and audio-equipment. If 20 receivers are used, three technicians are required at the receiving point—two men to adjust the receivers and one man to monitor the signal as it is received. In addition, a physician having familiarity with television techniques as well as an understanding of the subject matter of the presentation is necessary, not only in the initial planning of the program but in directing the cameraman and in coordinating the program while it is on the air. Working with the physician coordinator is a floor manager, whose duties include the preliminary instruction of the speakers, the moving of "props," adjustment of lights, arrangement of microphones, and so forth.

Color-Television Programs that Have Been Presented Before Medical Audiences

Date	Location	Medical Society	Hospital
1949:			
June 6-9	Atlantic City	American Medical Association	Atlantic City Hospital
Sept. 21-23	Denver	Colorado State Medical Society	Denver General Hospital
Oct. 17-21	Chicago	American College of Surgeons	St. Luke's Hospital
Oct. 29	New York	American Cancer Society	Memorial Hospital
Dec. 6-9	Washington, D. C.	American Medical Association	Johns Hopkins Hospital
1950:			
Feb. 6-8	Atlanta	Atlanta Graduate Medical Assembly	Grady Memorial Hospital
Feb. 28-March 3	Chicago	Chicago Medical Society Association Conference	St. Luke's Hospital
March 27-29	St. Louis	Missouri State Medical Association	St. Louis City Hospital
April 18-21	Boston	American College of Physicians	Massachusetts General Hospital
May 1-3	Fort Worth	State Medical Association of Texas	St. Joseph's Hospital
June 26-29	San Francisco	American Medical Association	Veterans Hospital
Oct. 2-4	Washington, D. C.	Medical Society of District of Columbia	Gallinger Hospital
Oct. 16-18	Philadelphia	Medical Society of Pennsylvania State	University Hospital
Oct. 23-27	Boston	American College of Surgeons	Massachusetts General Hospital
Nov. 1-3	Cleveland	International College of Surgeons	Charity Hospital
Nov. 15	Detroit	Wayne University College of Medicine Postgraduate Seminar	Grace Hospital
Dec. 5-7	Cleveland	American Medical Association	Lakeside Hospital
1951:			
Feb. 5-8	Atlanta	Atlanta Graduate Medical Assembly	Grady Memorial Hospital
March 5-8	New Orleans	New Orleans Graduate Medical Assembly	Charity Hospital
March 16-17	Philadelphia	Wills Eye Annual Conference	Wills Eye Hospital
April 9-12	St. Louis	American College of Physicians	St. Louis City Hospital
April 14	St. Louis	St. Louis Gynecological Society	St. Louis City Hospital
April 23-25	Kansas City	Missouri State Medical Association	Kansas City Municipal Hospitals
April 30-May 2	Galveston	State Medical Association of Texas	St. Mary's Infirmary
May 9-11	Denver	Rocky Mountain Medical Conference	Denver General Hospital
June 11-14	Atlantic City	American Medical Association	Atlantic City Hospital
June 20-22	Montreal	Canadian Medical Association	Royal Victoria Hospital
Sept. 24-29	Paris	International Society of Surgeons	Boucicaut Hospital

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[6] All programs have been transmitted over facilities installed by the Bell Telephone Company.

TECHNIQUE OF COLOR TELEVISION PRESENTATIONS

It is our belief that color television will assume an increasingly important role in medical teaching in the years to come. For this reason it seems important to call attention to some of the special techniques in teaching which are required in the use of this new medium, since some respects they differ radically from the traditional ɔds now in use. Capt. David Hawkins, Director of Audiovisual Training for the Third Naval District, speaking of naval training by means of television stated the problem succinctly when he said recently,[7]

Fig. 1.—An improvised "television studio" in an operating room of the Johns Hopkins Hospital. During the 1949 Clinical Session of the American Medical Association, the first intercity color broadcast occurred between Baltimore and Washington, D. C. For nonsurgical presentations two banks of fluorescent lights provide diffuse lighting of the area occupied by the speaker, patients, and other things. The color camera is seen in the center of the picture. The speaker is provided with a collar-type microphone.

> The great difficulties in teaching by television are finding the right instructor for television and adapting the lesson to the medium to take full advantage of its possibilities. All actors are not instructors and all instructors are decidedly not actors. The ideal would be an instructor thoroughly familiar with his subject and thoroughly at home before the microphone and camera.

Surgical Clinics.—In the teaching of operative surgery by means of color television, very little modification of present practices is required. Our experience in this regard has revealed a few points worthy of mention. Most surgeons apparently miscalculate the size of the surgical field visible to the television audience. This is usually so small that only the actual site of operation can be observed. The spectators cannot at once visualize the position of the patient or the actual location of the operative site. It is important, therefore, for the surgeon to demonstrate any landmarks, and to indicate whether the camera is placed at the head, foot, or to the side of the patient. This orientation of the audience avoids much confusion. The surgeon who is accustomed to operating before an audience seated in an amphitheater has developed the habit of pitching his voice to be heard by the audience and lowering it to make remarks to be heard only by the operative team. On television this habit can cause him some embarrassment until he learns the small microphone placed between the layers o mask picks up the slightest sound. Whispered comm give an impression of nervousness or irascibility o part of the surgeon which is not conveyed if he s in his usual voice. Actually, one of the great attrac of television to his surgical confreres in the audien the unrehearsed, unedited informality with whicl surgeon meets the vicissitudes of the moment.

Many surgical presentations are slightly marred b inadequate demonstration of pathological specime moved at operation. These are frequently demons at some distance from the site of operation, whe lighting is poor and the focus of the camera m changed in such haste that the spectators do not a satisfactory view. If a towel is placed over the in and the specimen examined very deliberately w *moving it unduly, a good view* is usually assured. the television camera is placed 2 or 3 ft. above t of operation, it is inevitable that the surgeon or his ants occasionally obscure the view for short p When this occurs, an intercommunication system p the monitor to inform the surgeon, who soon devel awareness of the position of the camera, which obviates the difficulty.

Most surgeons with teaching experience give v fective presentations without radical alteration i habitual methods of operating-room teaching. A r commentary by the surgeon should keep the au constantly oriented as to the details of the op technique which are being observed at a given m This commentary need not be continuous, provi audience is kept informed as to the purpose an nique of some future steps which may absorb the attention of the surgeon. If at some stage in the op

Fig. 2.—A view of the operating room during a color-television The camera is seen in the upper right-hand portion of the pictu approximately 1½ ft. above the heads of the operative team and interfere with their movements.

time must be devoted to an obvious step, such as off many hemostats, an opportunity is presented discussion of unrelated subjects such as the history, ical findings, indications for operation, mortalit tistics, postoperative care, and the like. Use of thi avoids such commentary at a time when the au uld prefer to concentrate on watching the technical cedures then being performed.

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[7] The New York Times, Feb. 18, 1951.

When a program of operative clinics is planned, it , in general, been found desirable to limit the tele- on presentation to those procedures which are essen- from the teaching standpoint and to eliminate such tine steps as the opening and closure of the wound. the average three-hour program it is usually possible chedule five major operative procedures. This usually essitates the use of two and occasionally three adja- t operating rooms, so that at the end of one procedure er the camera can be moved immediately to the next ient, in whom the preliminary steps of the operation e already been carried out, or the patient, prepared in of the adjacent operating rooms, can be moved under camera.

edical Clinics.—The effective presentation of a lical clinic requires techniques which are unfamiliar nost teachers. The selection of material which is well pted to the medium in use is of the utmost importance. far as possible, material which lends itself to pictorial sentation should be selected, since it is only here that r television contributes to the effectiveness of its sentation. A didactic lecture utilizes none of the uliar advantages of television and not only gains noth- but suffers the serious defect of seeming to place speaker abnormally close to the audience, who soon l this somewhat distracting. Our experience has amply onstrated that the television audience does not feel nd by any sense of courtesy to the speaker and will n depart if the picture on the screen is not interesting. ics proving of great interest because of their pic- al value have dealt with such subjects as the admin- ation of shock therapy, biopsy methods, cardiac eterization, the handling of radioactive isotopes, the onstration of dermatological lesions, fresh autopsy erial, and the like. Presentations built around demon- tions with patients are almost uniformly successful, ether they show, for example, the classical facies in locrinological disease or depend on interviews in ich interesting histories are elicited or the patient's ctions to certain forms of treatment, and so forth, are cussed. A number of clinics which have been par- larly successful come to mind, a few of which may mentioned at random: the development of methods speech following laryngectomy, the results of cortico- pin (ACTH) or cortisone treatment in cases of rheu- toid arthritis, the results of ileostomy in cases of erative colitis, the care of a colostomy patient, the stoperative results in operations for congenital heart ease, and so forth. All are subjects in which participa- n of the patients has added to the interest of the clinic.

While the use of color transparencies, lantern slides, rts, and x-rays all have a place, a presentation which nsists solely of them fails to utilize to the fullest the erent advantages of the medium of color television d fails to sustain the interest of the audience. Many eakers make the error of assuming that the usual lan- n slides, charts, graphs, and so forth can be used either m the platform or before a color-television camera. is assumption does not take into account the important fference that visual material is ordinarily enlarged by ojection to a screen but is reduced on the television receiver. The lettering, legends, and so forth on lantern slides and charts are, therefore, frequently illegible on the television screen. Charts are frequently too complex to be grasped quickly by the audience, and the method of colors to differentiate data is rarely utilized. Charts for use in television should be as simple as possible, approximately 2 by 3 ft. in size, and with heavy block lettering which should be at least 1½ in. high. Color should be used wherever it is appropriate. It has proved effective to use a blackboard and to construct a diagram or chart step by step rather than to show a previously prepared chart. This introduces the data to the audience one item at a time, which minimizes confusion, and, more important, is likely to discourage the speaker from attempting to construct a too complicated chart or diagram.

It has been interesting to observe that many of the mannerisms of speakers are accentuated before a television camera. Many clinic presentations are marred by the tendency of the speaker to sway from side to side, to walk about while speaking, or to move forward and backward. All of these present problems for the camera operator and give a disconcerting impression to the audience, since the close-up position of the camera not only exaggerates the movements of the speaker but causes him to get in and out of focus. With a little practice these defects are easy to correct; the speaker can train himself to stand quietly and look into the camera lens, rather than seem to avoid his audience.

Fig. 3.—A view of the color-television demonstration for the Annual Session of the American Medical Association in San Francisco, June, 1950. More than 12,000 physician visits were recorded during the four-day color-television program, which was transmitted from Ft. Miley Veterans Administration Hospital to the Masonic Temple.

AUDIENCE EVALUATION OF MEDICAL COLOR TELEVISION

After the annual session of the Missouri State Medical Association in St. Louis, March, 1950, a survey of the attending physicians was conducted to determine their opinion of the effectiveness of color television in postgraduate teaching of surgery. Of 116 physicians who answered the questionnaire, 91% preferred to watch surgery on color television rather than from an operating-room amphitheater, and 52% preferred to observe an operation on color television rather than from a place beside the operating table. The further effectiveness of color television in medical teaching was attested to by a survey conducted the following month during the annual session of the American College of Physicians in Boston, April, 1950. This survey, although not recorded statistically, indicated that the great majority of fellows desired an expansion of the television portion of coming programs.[8]

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[8] Loveland, E. R.: Personal communication to the author.

In November, 1950, a two-day postgraduate seminar, presented by the Wayne University College of Medicine and the staff of the Grace Hospital in Detroit, was given entirely by means of color television. The audience was made up largely of general practitioners. After this seminar Wayne University College of Medicine sent out 500 questionnaires, of which approximately 350 were returned.[9] The findings were that (1) 96% expressed a preference for watching surgery by means of color television, as compared with viewing it from an amphitheater; (2) 85% expressed a preference for a clinical presentation on color television, as compared with the conventional paper read from the platform; (3) 42% of this audience considered diagnosis the subject matter of greatest interest, 38% treatment, and 20% the new advances in research.

FUTURE OF COLOR TELEVISION

The use of color television in medicine has been limited thus far to postgraduate teaching before large audiences at medical meetings. It has not yet been possible to determine its place in routine undergraduate teaching. Greatly simplified equipment is now being manufactured,[10] which will reduce the initial and upkeep costs and the personnel requirements for the use of color television in medical schools. Future experience alone will indicate its proper place in intramural teaching. Certainly in surgery and dermatology its advantages have been amply demonstrated. While the growing tendency to teach in small groups reduces the necessity for television, any lectures, clinics, and demonstrations are still given large audiences which could be more effectively pre-nted by television. In the field of postgraduate teaching apart from formal meetings, color television presents its most challenging possibilities. With the recent nationwide extension of microwave radio relay towers, it is now possible for a medical program to be transmitted over a closed circuit, from New York City, for example, and be received simultaneously by physicians gathered in groups in various cities across the country. In addition, if the Federal Communications Commission were to allocate broadcast channels for educational purposes, one can visualize regularly scheduled programs from medical centers reaching the physician in his home or office on a practical basis. Since it would be undesirable for these programs to be available to the laity, a "scrambling" mechanism, such as that devised by the Zenith Radio Corporation for use in so-called "Phonevision," could be utilized. Such a device so distorts both image and voice that they are unintelligible unless they are "unscrambled" in the receiving set. By making available the device for "unscrambling" only to those accredited by their local medical societies, for example, control over the broadcast could be maintained.

SUMMARY

Since its introduction into medical teaching by Smith, Kline and French Laboratories, color television has been employed in 28 medical meetings in the past two and one-half years. Over 200,000 physician visits to these programs have been recorded. Color television is no longer a novelty which in itself attracts attention but can now be judged on its merits as a new medium for medical teaching. The response of physicians who have ob
color television leaves no doubt that the mediu
effective teaching aid, the potentialities of whic
only begun to be explored. The use of this mediu
require the development of new techniques whi
serve the attention of teachers of medicine. The v
color television in teaching large groups at medica
ings has been amply demonstrated. The adapta
the method to informal undergraduate teaching
needed. To provide color television to the physi
his home or office for purposes of postgraduate t
is a problem for the future.

36th and Spruce St. (Dr. Elsom).

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[9] Scott, G.: Personal communication to the author.

[10] The Remington Rand Company, under an agreement
Columbia Broadcasting System, produces color-television equi
medical teaching. The availability of such equipment is not a
the recent directive of the Office of Defense Mobilization rest
manufacture of color-television receivers.

CLINICAL NO

THIOCYANATE PSYCHOSIS

H. J. M. Barnett, M.D.
M. V. Jackson, M.D.
and
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This is a presentation of seven cases of thi
psychosis, two of which were fatal, one havi
studied at autopsy. An additional case of combi
mide and thiocyanate intoxication is described. T
ature has been reviewed with regard to the to
thiocyanate in the treatment of hypertension; in
lar, reports of fatal cases have been examined.

During the last half-century medical observ
argued for and against the use of thiocyanate.
perusal of the voluminous literature that has
lated only two things seem firmly established: 1.
tiveness, either as a symptomatic remedy or a
useful in reducing blood pressure, is by no me
erally accepted. 2. Toxic manifestations are r
common.

Having fallen into disrepute about 25 years a
cyanate came into favor again in 1936 when
described a rapid and easy chemical method of f
the blood level accurately. He maintained that
able side-effects were infrequent with careful f
blood studies. However, because of the inconven
recording repeated blood levels and the disagree
garding its usefulness, thiocyanate has remained
tively minor tool. A more extensive trial can be
again because of recent favorable comments by

From the Department of Medicine, University of Toront
Medical Service of the Toronto General Hospital (Dr. Barne
Spaulding), and the Department of Psychiatry, University o
and the Toronto Psychiatric Hospital (Dr. Jackson).

[1] Barker, M. H.: The Blood Cyanates in the Treatment
tension, J. A. M. A. 106: 762 (March 7) 1936.

in,[2] British,[3] Australian,[4] and Canadian [5] writers. How-ver, despite the fact that these authors invariably stress e necessity for close observation of patients being eated with thiocyanate, our experience indicates that e warnings may go unheard or unheeded partly because me current commercial advertising may fail to mention ell-recognized contraindications to therapy and may ake misleading statements regarding the potential toxity of thiocyanate.

CLINICAL USE OF THIOCYANATE

Although authorities have outlined careful programs at include dosage, clinical observation of patients, and equent measurement of serum levels, it is necessary to nphasize that none of the patients discussed here had en adequately followed by their physicians in all these spects. None had had serum levels estimated; at least e had been given an excessively large dose; and others, cause of mental confusion, might have taken more than is prescribed. Ayman,[6] Hines,[2] and Connell and associes [5] have recently summarized what they regard as the dications for the use of thiocyanate and their program r its administration. An average recommended dose Ayman) is 3 grains (0.20 gm.) three times daily for ree days, then twice daily for four days, the maintence dose to be determined by the serum level at this ge. The daily dose required to maintain a satisfactory vel varies from one person to another, and therefore estimation requires careful study of the patient. The aintenance dose would average between 3 and 6 grains).20 and 0.40 gm.) daily. Serum levels should be meased at least fortnightly, the aim being a range of 8 to 10 g. of thiocyanate per 100 cc. of serum, but levels up to 2 mg. are permissible. These serum levels are said to ve optimum effect with minimum toxicity.

THIOCYANATE TOXICITY

Apart from varying individual reactions to given doses the drug, certain other factors should be kept in mind. here is evidence that patients who are light in weight quire less of the drug than heavier patients.[5] The presice of renal disease affects excretion, causing the drug) reach dangerous levels rapidly. The drug diffuses itself rough all intercellular fluids, and if cardiac or renal lema is present the drug may be stored in large quantity ven though the blood level is deceptively low. A sudden iuresis would then raise the concentration of the drug dangerous levels. It should never be used, therefore, r patients with heart failure and should never be given efore a good clinical assessment of renal function has een made. It has furthermore been claimed—and the remise for the claim is reasonable—that a history of revious brain damage or evidence of existing abnornality in cerebral function should lead to very cautious se of the drug, if not to its complete exclusion. Despite ll these precautions, there are a number of persons in vhom toxic symptoms may appear at therapeutic levels; ve and others have encountered even the serious psyhotic complications at or near "therapeutic levels."[7]

Toxic manifestations are to be found in nearly all organ systems. Kessler and Hines [7] believe that they can divide the adverse symptoms into two general groups: 1) those that occur within the therapeutic range, and (2) those that are due to excess accumulation of the drug. In the former group, depressed bone marrow function and hypothyroidism are the most serious; fatigue, anorexia, and nausea the commonest. In the latter group, varying degrees of depressed cerebral functions are the major complications. Skin reactions varying from maculopapular eruptions to purpura and exfoliative dermatitis occur in both groups. Thrombophlebitis and coronary and cerebral thrombosis, cited as complications of the therapy, are more difficult to distinguish from the natural sequelae and complications of the underlying vascular disease. An interesting symptom is a peculiar aching of the legs and body attributed to osteoporosis.[2] The mode of production of most of these toxic complications is totally unknown, just as is the mode of therapeutic action of the drug.

The fatal cases reported in the literature were collected by del Solar and associates [8] in 1945. In several instances death followed the taking of thiocyanate for suicidal purposes, but seven patients died of the toxic effect of the drug while it was being given as therapy. Ayman [6] has pointed out that five of these had advanced impairment of renal function prior to therapy and that data in the other cases were inadequate in this regard. In the fatal case added by del Solar and associates, there was pathological evidence of chronic renal damage upon which a necrotic nephrosis was superimposed. In reviewing their management of the patient, we noted that restlessness was controlled with bromide. This drug is known to produce a toxic psychosis, which in our experience is indistinguishable from thiocyanate psychosis; therefore, bromide should be avoided in the management of the latter. One further fatal case has been reported, by Kessler and Hines. The patient, at death, was distinctly icteric and affected with a generalized exfoliative dermatitis. Postmortem examination disclosed extensive centrolobular necrosis of the liver, arteriolar nephrosclerosis, and cerebral edema. In all the fatal cases the toxic symptoms appeared after short periods of administration of the drug. Furthermore, in several of the cases reported there was an abrupt rise in the serum concentration from a "safe" to a dangerous level coincident with the onset of symptoms of toxicity. This phenomenon is not predictable by diligent observation of serum levels. However, it may be that more careful selection of patients for treatment with thiocyanate, excluding those with severe cardiac, renal, or cerebral damage, would reduce the likelihood of rapid, treacherous increases in thiocyanate retention.

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SOURCE OF MATERIAL

In the cases reported here, the patients were all presented as diagnostic problems in either the Toronto Psychiatric Hospital or the Toronto General Hospital, with a confusional psychosis as the outstanding feature. In every instance thiocyanate had been given in sporadic, casual, and uncontrolled fashion.

REPORT OF CASES

CASE 1.—E. C., aged 63, was admitted to the Toronto Psychiatric Hospital on May 11, 1941, because she refused food and drink, believing them poisoned. Relatives described her as a difficult person, habitually tyrannical and cruel but becoming more eccentric and suspicious as she grew older. About four months before admission her memory had become poor; she misidentified people, tended to live in the past, and became untidy. Her physician reported that she had been instructed to take 2½ grains (0.15 gm.) of sodium thiocyanate three times daily for a four-day period and to repeat this routine at intervals of a week to ten days for three months. There were no complaints referable to cardiovascular disease volunteered by the patient. Three days before admission she could not walk without staggering. The next day confusion was marked, and delusional thinking governed her behavior. The family described urinary incontinence, inability to swallow, and dribbling of fluids down the side of her face. She was sleepless and muttered to herself constantly.

On admission she was confused and disorientated, with slurred speech, rambling conversation, and urinary incontinence. Fluids dribbled from her mouth. The blood pressure was 200/106 mm. Hg, but the heart was clinically normal. The retinal vessels were tortuous and narrowed. There was slight lower left facial weakness. The serum cyanate level was 16 mg. per 100 cc.; serum bromide level, normal. During hospitalization the highest recorded urinary specific gravity was 1.011, but in a two-hour test it ranged from 1.002 to 1.005. The blood pressure varied from 0/106 to 162/80.

She was difficult to nurse because of the intensity of her auditory hallucinations and delusions of persecution. The neurological signs disappeared within 48 hours of admission but it was not until the serum cyanate had reached a level of 2 mg. (June 6) that the delirium subsided. A residual memory defect of a mild character persisted at the time of her discharge on July 5.

A follow-up examination a year later revealed she was frequently confused, very forgetful, and had night frequency, which confirmed the progression of cerebral and kidney damage. She died on Feb. 11, 1945.

The patient showed evidence, both before and after her delirium had subsided, of cerebral arteriosclerosis. She did not come out of her psychosis until her serum cyanate level was down to 2 mg. Because of her failing memory she probably had not followed her physician's instructions regarding her medication. Unfortunately, the only indication for the thiocyanate treatment had been the symptomless hypertension. During the most toxic period she presented transitory focal and neurological signs.

CASE 2.—M. M., aged 50, was admitted to the Toronto Psychiatric Hospital on Dec. 18, 1941, in a wildly delirious state. She was a widow, stable, with few interests outside of her factory work. On Nov. 19, 1941, she had had an attack of vertigo followed by vomiting, and examination the next day had revealed a hypertension of 220/105. Sodium thiocyanate (2½ grains [0.15 gm.] three times daily for five days) was prescribed, and then the administration was reduced to twice daily. On Nov. 28 the blood pressure was 160/98, and by Dec. 3, she became confused and irritable, misidentified sounds and people, and thought that animals were crawling over her body. Cyanate medication was discontinued Dec. 11, but her symptoms worsened until admission to the hospital.

She arrived in a very disturbed mental state. The pressure was 154/80 on admission and ranged between 1 and 126/62 during hospitalization. The heart was apart from electrocardiogram evidence of left ventricu ponderance. The specific gravity of the urine ranged 1.004 to 1.030. The nonprotein nitrogen level was 2 and the serum cyanate level, 24 mg. per 100 cc. No b was present. On Dec. 24 the serum cyanate level was 1 per 100 cc. and cerebrospinal fluid cyanate level, 1.4 mg. p cc. Fluids were forced, but the delirium did not subsi the serum cyanate level had been reduced to 5 mg. The p remained in the hospital until Jan. 24, 1942, when a slight r ual memory defect was noted.

On follow-up examination, Nov. 8, 1944, this memory d was still present but not marked; there had been a gradual ening of initiative and interest, but there were no sym referable to hypertension.

The patient died on April 29, 1946, after having suffered eral "strokes." No autopsy was performed.

A 50-year-old woman was given thiocyanate in st ard dosages to reduce blood pressure after an atta vertigo. She became delirious within 13 days o *beginning of the therapy*, and the delirium increas severity for a week after treatment with the drug stopped. On recovery there was a mild memory d which had not been noted before thiocyanate was *scribed. She had been employable prior to* her taki this medicine.

CASE 3.—E. T., a 65-year-old woman, was admitted Toronto General Hospital on Aug. 10, 1942, because of plained deepening stupor.

For more than five years she had been known to be tensive but free of symptoms related to cardiovascular d On July 29, 1942, she had experienced dizziness with a headache. The next day she felt worse and consulted a phy who, finding her blood pressure elevated, prescribed grains (0.40 to 0.6 gm.) of sodium thiocyanate every three The medication was maintained for the 12 days prior to sion. Symptoms had remitted until Aug. 7, when she weak, dizzy, and tremulous. During the next three da mental state was one of increasing retardation with slow, incoherent speech and deepening stupor.

The admission examination revealed a semicomatose w who screamed in protest against attempts to turn her i There was a blood pressure of 178/80 and moderate enlargement. The serum cyanate level taken on the fourt pital day was 36 mg. per 100 cc.; the patient's mental sta reverted to normalcy except for slight drowsiness.

The serum contained concentrations of 36, 20, 15, and 8 mg. per 100 cc. on the 4th, 8th, 10th, 12th, 16t 17th days, *respectively*. Urinary levels were 24, 19, 6, mg. per 100 cc. on the 9th, 12th, 13th and 16th days, tively. A Mosenthal test showed a specific gravity of from to 1.024. The serum contained no bromide on the fourt Serial blood pressures varied between 180/90 and 152/70

The patient was discharged from the hospital on A 1942, free of symptoms.

This patient was given an excessive dose of thi nate, and an increase in the severity of her sympto weakness and *dizziness developed*. Such complaints been stressed by some authorities as due to hyperte but it should be noted that drug intoxication prod similar picture before delirium results.

The diagnosis was *not made for four days*, be no drug intake was suspected. Cyanate delirium s be considered whenever mental symptoms are dev ing in a hypertensive patient.

CASE 4.—E. C., aged 60, was admitted to the *Toronto* P atric Hospital on Dec. 29, 1942, because he was wildly dis at home, had tried to choke his daughter, and had attemp w furniture out the window. He was a rather quick-tempered, orn, overly conscientious man, who had no close friends obbies; but his family had found him pleasant. After a k spell" he had been examined in a medical clinic on July 1942. The blood pressure was found to be 240/140, and was a gallop rhythm with no sign of heart failure. A diag- of hypertensive heart disease was made.

om July until early December he was well and working; he became more fatigued and increasingly short of breath. ng the few days before admission his family noted restless- periodic confusion, and forgetfulness. The morning ding admission he claimed he could hear strange people ng in the house, and later he suddenly became very disturbed iolent.

admission, he was unconscious, having been heavily ed. The blood pressure was 200/98-80, and the heart was ged. Because of hypertension and a history of delirium the n cyanate level was checked and found to be 30 mg. per cc. Other laboratory findings were nonprotein nitrogen 82 mg. per 100 cc.; blood sugar, 160 mg. per 100 cc., and rospinal fluid, normal.

s physician was contacted, and he reported that in mid- mber the patient's blood pressure had been 250/140. Five s (0.30 gm.) of sodium thiocyanate, three times daily, had prescribed and had been taken for 8 to 10 days before his ng to the hospital.

ring the first hospital day the patient roused somewhat. his condition worsened, and his temperature rose to 104 F. ied rather suddenly, less than 48 hours after admission. His refused autopsy.

his patient was given only 15 grains (1 gm.) of m thiocyanate daily for 8 to 10 days, but a highly serum level of 30 mg. per 100 cc. was found on ission. The violent behavior illustrates the severity e mental reaction that may result from the use of drug. The patient's illness presented a diagnostic lem because initially no history of thiocyanate medi- n was elicited. Nonetheless, the nature of the psy- is was suspected because of the combination of an e delirium and hypertension. Examination of the m confirmed the diagnosis before further information obtained from the family physician. The sudden h with preceding pyrexia was compatible with brain congestion and edema as described in other patients hom autopsies have been performed.

SE 5.—A. C., aged 55, was admitted to the Toronto Psychi- Hospital on Feb. 10, 1943, because she was extremely hensive and suspicious, and heard voices and sounds that ied her.[9]

e had been a happy, stable person. Two years before admis- she had consulted a physician because of general fatigue. ood pressure of 235/135 had been discovered. In January, , she was dizzy and again consulted a physician, who found od pressure of 250/140. He prescribed 5 grains of sodium yanate three times a day and at bedtime, beginning Jan. 29. eb. 8 she had become confused and tearful, and was unable nunciate her words clearly. Her blood pressure was then 115. Cyanate therapy was discontinued, but her mental state me worse. Her conversation was jumbled; she shouted out thought she was being poisoned. She said that she saw ls and accused her nurse of filling her with electricity.

n examination she was dehydrated; the blood pressure was 88, and the heart was clinically normal. Urinalysis showed urine contained albumin 2+, there were no casts, and the ific gravity was 1.024. Because of the delirium, the cyanate, nide, and nonprotein nitrogen blood levels were checked found to be 20 mg. per 100 cc., 0, and 73 mg. per 100 respectively. The serum cyanate level gradually fell to 12 by Feb. 22 and to 2 mg. by March 3. The nonprotein nitrogen l returned to normal by Feb. 22.

he patient continued to be very noisy and restless until nite improvement began on the eighth day. By the 18th day was mentally clear, and the serum cyanate level was 5 mg. per 100 cc. The blood pressure varied between 140/85 and 196/112-104, but during the week before discharge (March 6, 1943) it was 180-190/100-120.

Since the patient left the hospital, her niece reports that she has remained well physically and mentally, is contented and alert, travels alone, has not sought employment, but assists with the housework. In a letter to her niece dated February, 1950, the patient reported that her blood pressure had risen to 230.

After 10 days of standard thiocyanate therapy serious mental symptoms arose. The clinical state deteriorated after cessation of medication. The symptoms for which she had been given cyanate were trivial, and by 1950 she had carried on without therapy for seven years. It would seem unsound to administer a potentially dangerous drug to a patient such as this, whose hypertension continued uneventfully for seven years.

Case 6.—J. J. L., aged 69 years, was admitted to the Toronto Psychiatric Hospital on June 4, 1944, because he was confused, thought people were chasing him, and screamed for police protection.

On recheck examination for a chronic asthmatic condition on May 17, 1944, the patient's physician had found a blood pressure reading of 234/110 and had prescribed 2½ grains of sodium thiocyanate twice daily. By the seventh day of treatment the patient was very talkative and confused, from which time the intensity of his delirium increased.

On admission he was confused, resistive, and noisy. Examination disclosed dehydration, scattered rhonchi in his chest, a blood pressure of 140/80, and a clinically normal heart. The serum cyanate level was 32 mg. per 100 cc.; nonprotein nitrogen level, 61 mg. per 100 cc.; bromide level, normal. Urinalysis showed albumin 2+ with specific gravities of 1.014 to 1.019.

The patient was given intravenous fluids and tube feedings but continued to be a very difficult nursing problem. The serum cyanate level was 25 mg. per 100 cc. on the fifth hospital day. The next day he suddenly became cyanosed, and death occurred rapidly.

Autopsy[10] revealed arteriosclerosis of the large and small arteries throughout the body, with the characteristic arteriolar changes of benign hypertension. The kidneys were shrunken, scarred, and pitted, and weighed only 60 and 75 gm., respectively. The heart was not enlarged, weighing 370 gm. There was slight hypertrophy of the wall of the left ventricle (1.8 cm.). Distinct emphysema was present with bullous formation.

The brain weighed 1,410 gm. and exhibited frontal gyral atrophy but was moderately edematous. The superior cerebral veins were congested. The pons and medulla were severely congested and edematous, so that the former bulged well forward and was soft even after fixation. Microscopically there was evidence of severe arteriolar sclerosis throughout all parts of the brain. The gross appearance of medullary and pontine edema and petechial hemorrhages was confirmed. Some of the latter were in the floor of the fourth ventricle and the lateral walls of the third ventricle.

This patient's psychosis was evident by the seventh treatment day, and he was dead approximately two weeks later. Distinct brain-stem edema and nephrosclerosis were the chief autopsy findings. The case demonstrates the danger of thiocyanate therapy without adequate assessment of renal function. Elderly hypertensives are more liable to have significant renal damage and accordingly should be examined carefully.

Case 7.—M. K., aged 50 years, was admitted to the Toronto General Hospital on Dec. 6, 1949, in a greatly confused mental state.

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[9] This case of thiocyanate damage was reported by Dewan, J. G., and Owen, T.: Mental Illness and Principles of Medicine, Canad. M. A. J. 52: 349 (April) 1945.

[10] Prof. E. A. Linell, of the Department of Neuropathology, Banting Institute, University of T[illegible] allowed us to use the autopsy report of this case.

Two and one-half years previously she had suddenly suffered right-sided paralysis with aphasia and disorientation. For five weeks catheterization had been necessary. Recovery had been gradual, the only residuum being a feeling of strangeness in the right side of the body.

Five weeks prior to admission she had consulted a physician, who, finding a blood pressure of 240/120, had prescribed sodium thiocyanate. This drug was taken in doses totaling 7½ grains (0.50 gm.) daily from Nov. 7 to Nov. 14, then 10 grains (0.60 gm.) daily until Nov. 24, and finally 7½ grains daily until the patient entered the hospital 12 days later.

About two weeks before admission her movements became incoordinated and her speech, slurred. She was disoriented, and confused, and had urinary retention.

Admission examination showed a bewildered woman, hallucinated in the auditory field. Her mood was labile, changing quickly from laughter to tears. She was dysarthric and had difficulty carrying out simple commands. The retinal arterioles were narrowed. The blood pressure was 160/90 and the heart enlarged, with a loud precordial systolic murmur. Brisk tendon reflexes in the right leg with a positive Babinski reflex were interpreted as residual from the previous hemiplegia. On the second hospital day the serum cyanate level was 39 mg. per 100 cc. No bromide was present in the blood serum.

After the first week, improvement occurred to the point where she was aware that she was in the hospital but was confused as to time. On the 10th day her mental state had returned to normal. Inability to urinate persisted until the fourth week, at which time, despite the finding of an atonic bladder on cystometrography, she could urinate well enough that the residual urine measured only 10 cc. Serial serum cyanate levels were 39, 29.5, 28, 17.5, 16, 14, 10, 6, 4, and 1.5 mg. per 100 cc. on the 2nd, 3rd, 4th, 5th, 6th, 11th, 14th, 15th, 17th, and 21st hospital day, respectively. The cerebrospinal fluid contained 14 mg. per 100 cc. of cyanate on the second day, and a trace on the 22nd day. Serial blood pressures ranged between 140/105 and 130/70.

She was discharged from the hospital on Jan. 9, 1950. Follow-up examinations in the outpatient department have revealed an alert, happy woman, able to do her own housework and having a symptomless hypertension.

A woman with definite evidence of residual hemiplegia was given thiocyanate for four weeks, and a state of delirium developed after two weeks of therapy. The serum cyanate level on admission to the hospital was 39 mg. per 100 cc., and the cerebrospinal fluid level, 14 mg. er 100 cc. The drug was prescribed on the basis of a ingle blood pressure reading. During the development of toxic symptoms thiocyanate may be continued by a physician who mistakes an onsetting psychosis for manifestations of hypertensive encephalopathy.

Case 8.—N. B., aged 59 years, was admitted to the Toronto Psychiatric Hospital on March 27, 1940, because she was confused, excited, and visually hallucinated. An asymptomatic hypertension (210/120 to 170/100) had been detected in the course of a routine physical examination in January, 1935. In January, 1940, she showed increased anxiety about money and dislike of living with her children. Because of insomnia and crying spells, a physician prescribed a bromide mixture. (No doctor admitted prescribing cyanates.) At first the bromide promoted natural sleep, but during the three weeks before admission she became increasingly drowsy. Two weeks before coming to the hospital she staggered, muddled her speech, cried frequently, and thought she would die. Three days before admission she was much worse: fearful, noisy, restless, and claiming she saw men with scissors who were trying to cut her into pieces. She heard the rushing of waters and thought they would all drown.

On admission she was ataxic, confused, stuporous, and unable to feed herself. She then became more noisy, restless, and vividly hallucinated as the stupor lifted. Her blood pressure was 165/100; serum bromide level, 290 mg. per 100 cc.; serum cyanate level, 15 mg. per 100 cc.; nonprotein nitrogen concentration, 35 mg. per 100 cc. Urine concentrated to a specific gravity of 1.035.

On the fourth hospital day the patient was menta
The serum bromide level was then 120 mg. per 100 cc.;
cyanate level, zero.

The patient was discharged one month after admis
continued to have a persistent asymptomatic hyperten
had occasional recheck examinations, during one of whic
she stated that she was "better than for many years."
on July 3, 1949, from cardiac insufficiency which had p
during the three months before death. Autopsy was
formed.

This is an example of a combined bromide and
delirium. The subsequent course revealed that
years she remained free from any symptoms ref
cardiovascular disease. Thiocyanate had been
is frequently the case, for symptoms of anxiety
attributed to hypertension.

COMMENT

Several difficulties that hinder the prompt re
of thiocyanate psychosis deserve emphasis. Clin
toxic delirium varies from mildly stuporous, co
states to delusional, hallucinatory, or maniacal
The psychosis resembles and indeed, as ind
Case 8, may coexist with bromide psychosis.
of mild confusion may complicate the problem,
patient may then unwittingly further overdose
The fact that the psychosis is increasing in sev
one knows the drug has been discontinued
invalidate the diagnosis, as was amply demon
two of our cases. In Case 2 the psychosis w
worse a week after therapy had been terminate
(Case 5, three days after cessation. Focal ne
signs should not allow the diagnosis to be n
least four of our patients were considered by t
cians to be suffering from cerebral vascular
or "hypertensive encephalopathy." We wish
that any patient with a delirium of obscure o
ticularly a patient said to be or found to be hy
may be suffering from thiocyanate intoxicatio
denial of drug intake by relatives or ignorance
prescription by the attending physician, seru
should be made. Neglect of this often results in
recognize thiocyanate poisoning.

There would seem to be no justification for
remedy of disputed value in a casual manner.
drug is used in sporadic, uncontrolled fash
cyanate psychoses may be expected more f
Such cases will be rare in carefully studied
published morbidity and mortality figures in
view of its dangers the drug, if used at all,
given only to patients carefully followed with
optimum dose, serum levels, and toxic reactio

SUMMARY

A series of eight cases of thiocyanate psyc
senting problems in the diagnosis of confusion
sis are reported. Two died. In no instance w
cyanate measurement used to guide the drug a
tion. The incidence of thiocyanate psychosis is
higher than generally believed because of ign
the condition and its misinterpretation as hy
cerebrovascular disease. Thiocyanate is a dange
unless patients are closely observed for toxic r
tions and serum levels are taken frequently.

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ERCAPTOMERIN SENSITIVITY

PORT OF A CASE

ster Weissman, M.D., Jersey City, N. J.,
d
. Harold Gelfand, M.D., New York

Effective employment of mercurial diuretics in the anagement of cardiac decompensation is now well cognized. With the widespread use of these drugs, reac- ons have been noted ranging from local irritation at the te of injection to cardiac arrest caused by mercurial oisoning. The fatalities reported in the literature have l followed intravenous injection; other reactions in- uding severe shock have been observed following all her methods of administration. Hypersensitivity states, icluding asthma, urticaria, fever, and mild shock, have ccurred frequently. After intramuscular injection, the icidence of toxicity is considerably lessened; however, ical pain and irritation are common and objectionable. fforts have therefore been directed toward developing mercurial diuretic which would be less toxic, locally less ritating, and more easily administered than the diuretics ow in use.

In the attempt to reduce mercurial toxicity, BAL (2, -dimercaptopropanol) was combined with a mercurial oup. While this successfully reduced the toxicity, it lso eliminated the diuretic effect.[1] The next step con- sted in combining a single mercapto group with the rganic mercurial. This salt, called mercaptomerin, was emonstrated to be 160 times less toxic than meral- iride (mercuhydrin®) on a cat's heart.[2] It has been in- oduced for subcutaneous use under the trade name of iomerin.®[3]

The following case is reported to warn other clinicians f the possibility of reactions of the sensitive or allergic pe, reports of which have been conspicuously absent the literature.

REPORT OF CASE

C. K., a white woman aged 49, had a long history of rheumatic art disease and had had choking sensations and shortness of eath of one day's duration. The onset of symptoms had ccurred at night while the patient was in bed; she had obtained me relief by sitting up. The symptoms persisted, and she was dmitted to Gouverneur Hospital on Jan. 28, 1950.

She had previously been hospitalized in 1946, 1947, 1948, and 949, for rheumatic heart disease with decompensation. The atient had been seen frequently at the Cardiac Clinic, and was king a maintenance dose of digitalis daily; this was discon- nued one month prior to the present admission. Physical kamination revealed a thin, anxious woman, who was dyspneic nd orthopneic. Positive findings were blood pressure, 150/100; eart rate, 96, with regular sinus rhythm and an occasional extra- ystole; enlarged heart with presystolic and systolic murmurs eard at the apex; accentuated second pulmonic sound; bilateral ioist rales heard at both lung bases; and minimal bilateral pit- ng edema of the lower extremities. A diagnosis of rheumatic isease with mitral stenosis and insufficiency, and cardiac decom- ensation, was made. The patient was treated with meralluride, alt-free diet, and bed rest.

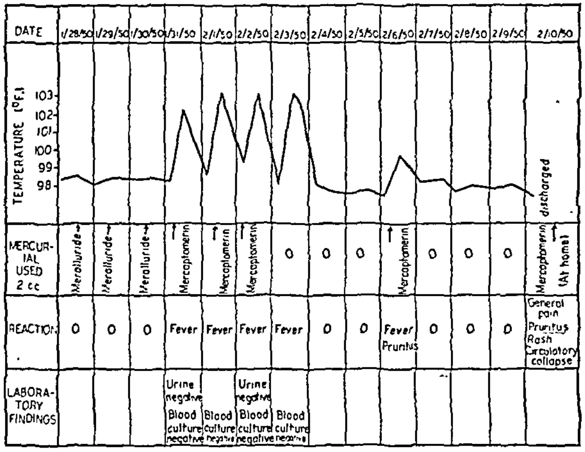
On Jan. 30, 1950, she was digitalized again with digoxin. The ollowing day 2 cc. of mercaptomerin was given instead of eralluride. That evening she began to run a spiking tempera- ure. Examination of the respiratory tract, legs, and urine failed o elicit the cause of the temperature elevation. Urine and blood ultures were all noncontributory. The fever continued until eb. 4, 1950, when it subsided without therapy. The dates of he temperature spikes coincided with mercaptomerin injections. The day after the daily injections were discontinued the fever subsided (Chart).

On Feb. 6 she was again given 2 cc. of mercaptomerin. One-half hour after the injection she complained of generalized pruritus; this subsided after she was given tripelennamine (pyribenzamine®) hydrochloride. She refused any further injections. On Feb. 10 the patient was discharged for home care. That afternoon the visiting nurse gave her an injection of 2 cc. of mercaptomerin at home. Shortly after the injection the patient complained of severe abdominal cramps and generalized pruritus. Tripelennamine was again prescribed, but the symptoms persisted. A local physician was called in and found the patient in a state of circulatory collapse. She was promptly readmitted to Gouverneur Hospital.

The patient's abdomen and chest were covered with a generalized erythematous rash. Blood pressure was 60/30; pulse rate, 60. Other findings were essentially as before. Fluids, sedation, and antihistamine drugs were administered. All the symptoms subsided by the following day, and the patient was discharged two days later.

COMMENT

We consider this to have been an allergic reaction, accompanied with fever, chills, sweating, and circulatory collapse. It is believed that the patient became sensitized to mercaptomerin, and during the last hospital admission manifested this sensitivity. The problem was to definitely establish this premise.



Clinical course after administration of diuretics.

The methods of skin testing for hypersensitivity to drugs were reviewed. The outstanding reports of positive reactions to skin tests with drugs are presented below.

Sherman and Cooke demonstrated a positive passive transfer to sulfadiazine in a patient with a severe clinical reaction to this drug. The presence of a skin-sensitizing antibody to sulfadiazine was demonstrated by means of a patch test with 10% sodium sulfadiazine. After 90 minutes a definite wheal with erythema was noted at the site of the patch. Passive transfer showed a marked reaction to 1% sodium sulfadiazine with a wheal 1.5 cm. in diameter. Controls were negative.[4]

From the combined medical services under the direction of Drs. Theodore Sanders and Arthur Schifrin, Gouverneur Hospital. Resident in medicine, Gouverneur Hospital (Dr. Weissman). Visiting physician, and chief of the Department of Allergy, Gouverneur Hospital (Dr. Gelfand).

[1] Faran, A.: The Effect of Sulfhydril Compounds on Action of Mercurial Diuretics, Northwest Med. 47: 798, 1948.

[2] Lehman, R. A.: Further Studies on Acute Toxicity of Mercurial Diuretics, Proc. Soc. Exper. Biol. & Med. 64: 428, 1947.

[3] The Campbell Pharmaceutical Co., 79 Madison Ave., New York 16.

[4] Sherman, W. B., and Cooke, R. A.: Sulfadiazine Sensitivity with Demonstrable Skin-Sensitizing Antibody in the Serum, Am. J. Med. 2: 588, 1947.

Whittemore and de Gara demonstrated a positive scratch test to sulfadiazine and sulfathiazol.[5]

Gottlieb showed a positive patch-scratch test to meralluride in a patient who was clinically sensitive to the drug and who reacted to it with urticaria.[6]

Goodman and Levy performed scratch, patch, and intradermal tests using sulfanilamide both powdered and in solution. In one patient all three tests were negative, whereas in another patient the scratch test was positive, although the intradermal and patch tests were negative.[7]

Wedum successfully sensitized animals to sulfathiazole, sulfanilamide, and sulfapyridine azoproteins made by conjugation with egg whites, beef serum, and human serum. He was able to demonstrate anaphylaxis, positive intradermal tests, and precipitins in these animals, using the homologous chemoprotein.[8]

Generally speaking, however, skin tests with drugs have been uniformly negative in the positive wheal reaction.[9] The delayed inflammatory reaction which usually follows is nondiagnostic, for it may be nonspecific in type and bear no relation to the clinical sensitivity.

The crux of the problem lies in proving the allergic aspects of sensitivity to the drug if the intradermal or dermal skin tests are either negative or show only the inflammatory reaction. A clue to the answer has been offered by Leftwich.[10] The rationale of eliciting a positive intradermal test to the serum conjugate in those who are clinically hypersensitive to a drug is based primarily on the original work of Schönholzer,[11] and Davis,[12] who proved that the sulfonamides could combine with the plasma proteins. Rich [13] proposed the hypothesis that the sulfonamides, when attached to the plasma proteins, probably act as haptens, thus sensitizing the body specifically. Leftwich worked with patients known to be hypersensitive to the sulfonamide drugs. He devised the method of skin testing with serum obtained from patients who were receiving sulfonamide therapeutically and who had a drug level of from 2 to 25 mg. per 100 cc. The sensitizing antigen is thus a sulfonamide plasma p combination which occurs in vivo in the circulating b of these patients during sulfonamide therapy. Sc holzer demonstrated the binding of the azo dye of "P tosil" to serum albumin by means of electropho techniques. Leftwich showed negative skin test reac with solutions of various sulfonamide drugs in pat who were clinically hypersensitive to them. Howeve previously stated, he was able to demonstrate that t serums taken from persons undergoing sulfona therapy who had reached a high drug-serum level, injected *intradermally* resulted in a positive whe action.

Sherman [14] and his associates, as well as Fink, B and Wheeler [15] were unable to corroborate the r obtained by Leftwich. However, Gelfand,[16] in a report, showed a positive immediate wheal react such a test with serum-conjugate taken from a p who manifested a clinical sensitivity to meralluri ilar to the sensitivity to mercaptomerin reported paper. Brown and Goodgold [17] demonstrated an diate skin reaction to serum containing aureomy

Thus, we have a method of demonstrating drug sensitivity by means of the serum-conjugate met cases where the patient is clinically hypersensiti the test with the drug-antigen is either too irritati produces nonspecific reactions or results in a fla tive skin test reaction.

The following method was employed in demon the allergic nature of the sensitivity to mercapto the patient discussed here. At first an ampule sol mercaptomerin and meralluride was used. An i of 0.05 cc. of both drugs was given intradermall forearm with but slight response of indeterminate Serum from the patient during the active phase captomerin sensitivity, i. e., within a short time a date of the original reaction, was then prepared. was also taken from a patient not receiving me and from a patient receiving meralluride; 0.05 cc. of these serums was injected intradermally to small wheal. The mercaptomerin serum-conjug duced a marked positive reaction in the form of a wheal within 20 minutes. The other two serums p negative reactions. Ten months after the cessa mercaptomerin therapy the patient was again te this time, theoretically, the patient's serum wou an antigen-free state; i. e., the mercaptomerin conjugate would no longer be active. As was e the patient did *not* react to her own serum at this t an additional check, the patient was skin test serum from a nonsensitive patient receiving m merin at the time the tests were done. This ser tained the active serum-conjugate of mercapt When injected intradermally, a positive wheal r was produced. Normal human serum produced tive reaction.

This then is a case of hypersensitivity to me merin that is manifested clinically by fever, ab cramps, pruritus, an erythematous rash, and cir collapse, and demonstrated rather conclusively b of the intradermal wheal reaction.

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SUMMARY

. case of congestive failure was described in h hypersensitivity to mercaptomerin (thiomerin®) is onstrated. The patient was able to tolerate meral- le.

ıtradermal skin tests with mercaptomerin were nega- A marked positive immediate wheal reaction was ted in the mercaptomerin-sensitive patient with post- ed mercaptomerin serum taken from her in the active gen phase, immediately after the clinical reaction to drug. However, the reaction was negative when d with serum in the negative phase 10 months after occurrence of the untoward reaction. A positive al reaction was elicited in the patient using active captomerin serum-conjugate of a nonsensitive pa- . Normal human serum, used as a control, produced tive reactions.

Park Ave.

K PARALYSIS

ORT OF A CASE

lah M. Kittrell, M.D., Maryville, Tenn.

he bite of certain female wood and dog ticks results generalized flaccid paralysis, which terminates fatally ss the tick is found and removed. Although this syn- ne has been recognized for almost 50 years, a cursory ew of the literature indicates that this fact is not gen- ly known. Tick infestation is widespread, but the case reports come from limited areas, many states er having reported its occurrence.

he following case is presented to call attention to the as the possible cause of unexplained ataxia and alysis and to the fact that its removal results in rapid complete recovery from an otherwise fatal illness. re have been no other cases reported from Ten- see.

REPORT OF CASE

healthy 4-year-old girl awoke in the morning with incoordi- on of both upper and lower extremities. She refused to get out ed or to feed herself. She did not complain but stated simply her feet felt "soft and flat." Her movements were too unco- nated for her to feed herself, but she ate heartily when fed ier mother. On attempting to stand, she swayed from side to , then crumpled on the floor. With support, she staggered ss the room, but apparently had complete loss of muscle e or direction. There was no history of antecedent illness. The before, her movements had appeared awkward, and she had once that her feet "felt queer." This was thought to be be- se of the cowboy boots she had been wearing and was of significance except in retrospect. Family and past history e noncontributory.

he findings of the physical examination made four hours r the onset of the illness were negative except for neurologi- signs. The child was sitting up in bed and appeared appre- sive and uneasy. Her eyes had a glassy stare, and there was ie tremor of her hands. There was questionable thickness in voice. She was fully oriented but was cross and noncoopera- .

ensation was normal. There was bilateral absence of biceps l triceps reflexes in the upper extremities. The degree of in- rdination was difficult to estimate, because she refused finger- ose and other tests. All superficial abdominal reflexes were ent. There was bilateral absence of knee jerks. She could se her legs normally and flex both knee and hip joints. Plantar flexion and extension were good. On attempting to stand or walk she repeated the same ataxic pattern exhibited on arising.

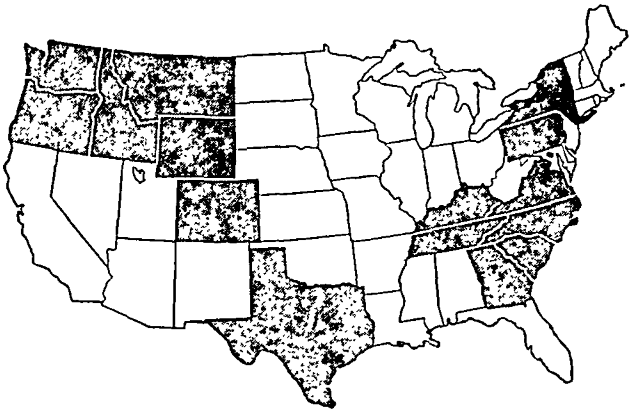
A consultant was called, and while hospitalization and spinal studies were being discussed, a moderately engorged tick was accidentally felt in the left occipital region. It was removed intact. Two hours later, the child walked across the room unsupported and of her own volition. Her gait was unsteady, but she did not fall. Before, it had required a great deal of coaxing to induce her to attempt to get out of bed or walk. The following morning her gait was normal and all reflexes were present. She has been well since.

The tick was identified as Dermacentor variabiles Say, or the common dog tick, which is prevalent throughout this area. It had been removed alive and placed in a glass jar. The following morning there were three stacks of eggs in the jar. It was felt that it was possible to make a diagnosis of beginning tick paralysis because there were present sufficient criteria: (1) severe ataxia with loss of reflexes, (2) discovery and removal of a female tick, and (3) rapid and complete recovery.

COMMENT

Although ticks are widely distributed throughout the United States, only fourteen states and the District of Columbia have reported tick paralysis. These cases have been concentrated in certain areas of the extreme Northwest and in the South, to the Atlantic seaboard.

The files of the Rocky Mountain Laboratory of the United States Public Health Service (Helena, Mont.) show an average, since 1903, of 2.7 cases per year in the states of Montana, Oregon, Idaho, Washington, Wyoming, and Colorado. The paralysis resulted from the bite of the Rocky Mountain wood tick (Dermacentor andersoni Stiles), and up until 1938 the disease was thought limited to this insect's range, since no cases had been reported elsewhere.



States from which tick paralysis has been reported (shaded areas).

The first recognized case east of the Mississippi River occurred in South Carolina, in 1938.[1] Since then, 16 other cases have been reported,[2] giving an average of 1.4 per year. All have been south of the Mason-Dixon Line except for one in Pennsylvania[3] and one in New

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[1] Gibbes, J. H.: Tick Paralysis in South Carolina, J. A. M. A. **111**: 1008-1009 (Sept. 10) 1938.

[2] Robinow, M., and Carroll, T. B.: Tick Paralysis Due to Bite of American Dog Tick: Report of Case Observed in Georgia, J. A. M. A. **111**: 1093-1094 (Sept. 17) 1938. Bloxsom, A., and Chandler, A. C.: Transient Paralysis Due to Bite of American Dog Tick (Dermacentor Variabilis Say), Am. J. Dis. Child. **67**: 126-127 (Feb.) 1944. Ryan, C. P., and Canning, H. B.: Tick Paralysis Resulting from Infestation with Dermacentor Andersoni of Stiles, Common Rocky Mountain Wood Tick, J. South Carolina M. A. **40**: 229 (Nov.) 1944. Prince, G. E.; Keeley, J. C., and Scott, E. P.: Tick Paralysis in Children, J. Pediat. **28**: 597-601 (May) 1946.

[3] Dawson, K. E.; Sherman, A. J., and La Boccetta, A. C.: Tick Paralysis: Report of Case from Philadelphia, Am. J. Dis. Child. **79**: 491-494 (March) 1950.

York.[4] The tick, when identified, has been D. variabiles Say, prevalent throughout the central and eastern United States.

The few cases reported are from only small sections of the vast areas inhabited by the two types of ticks. With their almost universal distribution it appears the disease would be more widespread.

The paralysis is believed to be due to a specific neurotoxin produced by a limited number of pregnant female ticks. Symptoms are mild and transient if the tick is found and removed early. If it is not found until bulbar signs are present, death results from respiratory failure. The only treatment is for the physician to think of tick paralysis whenever signs and symptoms of unexplained paralysis are present and remove the tick.

Jellison and Gregson,[5] in a review of the cases occurring in the western United States and British Columbia,[6] state that, even in areas where there is widespread knowledge of the disease, deaths continue to occur. They cite two instances in which ticks were found and removed by morticians.

CONCLUSION

Although tick infestation is known to be widespread, few cases of tick paralysis have been reported. Since most textbooks mention only that such a syndrome is known to occur, and since so few cases have been reported in the current literature, it seems likely that many cases may be overlooked.

304 Blount National Bank.

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[4] De Sanctis, A. G., and di Sant' Agnese, P. A.: Tick Paralysis (Report of Case in New York), J. A. M. A. **122**: 86-88 (May 8) 1943.

[5] Jellison, W. L., and Gregson, J. D.: Tick Paralysis in Northwestern United States and British Columbia, Rocky Mountain M. J. **47**: 28-33 (Jan.) 1950.

[6] Phillips, P., and Murphy, M. A.: Tick Paralysis, Canad. M. A. J. **63**: 38-39 (July) 1950.

SYMPATHECTOMY PRECEDING LIGATION OF THE CAROTID ARTERY

REPORT OF A CASE

Paul G. Flothow, M.D., Seattle

In 1935, after ligation of the subclavian artery, followed by immediate sympathectomy without ill effects, I suggested that whenever it became necessary to ligate a major blood vessel anywhere in the body that it would be wise to precede this ligation by sympathectomy, or if the vessel were ligated inadvertently, an immediate sympathectomy at the proper level would insure against a vascular catastrophe.

I offer the following case report to illustrate the application of this principle in ligation of carotid arteries.

REPORT OF CASE

History.—The patient presented herself on June 10, 1949, with the history of a malignant tumor removed from the right side of her neck in December, 1947, with immediate left-sided hemiplegia, the surgeon having been forced to ligate the common carotid artery. The paralysis had improved somewhat, but she still had a spastic left hemiparesis. She was informed that the tumor was malignant but not cancerous. The surgeon wisely declined to remove the tumor on the other side which was of approximately the same size.

The patient complained of pain in her neck and
side of her head, and, since the tumor mass was enlarg
was very much worried for fear it was cancerous. This
was 40 years old, and in view of the fact that ligation
carotid artery two years before had resulted in hemiplegia
fair to assume that a ligation of the other carotid would
hemiplegia on the other side.

While I felt quite confident that cervicothoracic sympath
would normally prevent the development of hemiplegia,
particular case, the other carotid having been ligated, I
that this factor might prevent the establishment of the
lateral circulation necessary to prevent hemiplegia unless
spasm were the important factor in its development.

The various possibilities were discussed with her, and
insistence surgery was very reluctantly undertaken.

Operation.—Surgery was performed on Sept. 9, 1949. Th
a supraclavicular incision a cervicothoracic sympathectom
first done, with removal of the inferior cervical and fir
second thoracic ganglions and the trunk. This wound was
closed and another incision made for removal of the
body tumor. The tumor mass was approximately 4 cm. in d
ter, and it was impossible to remove the tumor mass w
ligation of the carotid vessels above and below the tumor
procedure was carried out, ligating two vessels above a
below, all of which were undoubtedly the common carot
the internal and external carotid arteries. The patient m
uneventful recovery without even a trace of hemiplegia
result of the ligation of the carotid arteries, in spite of
that the opposite carotid had been ligated previously.

It is a well-recognized fact that, in spite of
preliminary digital or mechanical compression
carotid arteries, not infrequently, when the car
finally ligated, hemiplegia does occur. This pheno
can be explained by the fact that ligation of the
produces an immediate and marked vasospasm
entire vascular tree which is not produced by th
preliminary compression. This vasospasm is, of
avoided when preliminary sympathectomy is do
it is my opinion that this is the most important fa
volved in the development of the hemiplegia.

COMMENT

My associate, Dr. Hunter J. MacKay, has h
casion four times during his naval experience
three occasions since then to operate for axillary
rysms, and on each occasion he has preceded th
ation by cervicothoracic sympathectomy. There ha
instance been any vascular insufficiency resultin
ligation of the axillary artery.

CONCLUSIONS

The above cases, reported with their results,
a fair assumption that, in any case in which it b
necessary to ligate a major blood vessel, this ligati
be immediately preceded or immediately followe
suitable sympathectomy with a great deal of ass
that there will be no ill effects as a result of the lig

It is suggested that in all cases in which it b
necessary to ligate the carotid artery, either as an
or as a necessary procedure, that this ligation sh
preceded by cervicothoracic sympathectomy, w
is suggested, is a much more adequate insurance
the development of hemiplegia than any method
peated compression or gradual compression of the
artery before ligation.

1317 Marion St.

From the Seattle Neurological Institute.

E OF HUMAN SERUM ALBUMIN IN REBRAL EDEMA FOLLOWING RDIAC ARREST

PORT OF A CASE

nk Cole, M.D., Lincoln, Neb.

Human serum albumin was first used to combat post-sthetic encephalopathy by Seldon and associates.[1] wever, in the two cases they described, there was no diac arrest. In the case presented here, human serum umin was administered in a post-asystolic syndrome.

REPORT OF CASE

t 7:40 a. m. on June 21, 1950, a tetracaine-procaine spinal sthetic was administered to a 21-year-old white man, by his geon, for right inguinal hernioplasty. The injection was made he second lumbar interspace after administration of 50 mg. phedrine. Six minutes later the level of anesthesia was at the bilicus; the head was then raised. During the next 30 minutes blood pressure fell progressively, but not too precipitantly. bon dioxide and oxygen were given for nausea and perhaps llow respirations. By 8:20 a. m. the blood pressure was 100/60. minutes later the patient became both apneic and pulseless. head was lowered, and after several minutes oxygen was ninistered under pressure.

he patient was cyanotic; his pupils were widely dilated. His or improved after one minute, but, although 1 cc. of epineph- hydrochloride and 1 cc. of pentylenetetrazole (metrazol®) e administered intravenously, the heart remained flaccid. A lline subensiform incision was made, and the heart was mas- ed for three minutes. Finally, 1 cc. of epinephrine was injected the heart. Two minutes later the first feeble heart beat was ed. The contractions gradually became stronger and regular hythm and volume. At 8:35 a. m. the patient drew his first untary breath since the appearance of cardiac arrest. Within minutes respiration was deep and apparently normal, and the ration was resumed.

t 9:20 a. m. both incisions were closed. The patient was ced on a cart, where he immediately became spastic. The sticity became severer; the breathing was stertorous. Pink, thy pulmonary secretions appeared, which were aspirated. neralized spasm appeared, then rigidity and convulsions. The nvulsions continued until noon, being stopped three times by avenous administration of thiopental (pentothal®) sodium. patient continued to have a considerable amount of mucus. first saw the patient at 12 noon, while he was still unconscious d in convulsions. The respiratory rate was 40, the pulse rate , and the blood pressure good. The color was fairly good ile he was receiving oxygen; without it, he was cyanotic. He s given 5 cc. of thiopental sodium and 50 cc. of 50% glucose ravenously. The convulsions stopped, and the rigidity gradu- y declined. At 12:30 p. m. his rectal temperature was 105.2 F d blood pressure 140/85.

On arriving, I had substituted a Guedel pharyngeal airway the mouth gag that was being used. The BLB (Boothby-Love- e-Bulbulian) mask was now removed, and an ordinary face sk connected to an anesthesia machine was applied. Oxygen der pressure of 4 mm. Hg was administered to combat the lmonary edema; the inhaling breathing tube was surrounded cracked ice. The increased pressure promptly cleared the pul- onary edema. Glucose was again given intravenously at 1 p. m. this time the temperature was 104 F, pulse rate 112, respira- n rate 36, and blood pressure 138/85. It had been apparent rlier that cerebral edema was present, and at 1:30 p. m. 100 cc. human serum albumin (containing 25 gm. of albumin) was ad- inistered intravenously.[2] At 2 p. m. the patient opened his eyes d appeared to swallow. The temperature fell to 102 F. A half- ur later he moved for the first time, turning over onto his domen. At 3 p. m. 100 cc. of human serum albumin was ain given intravenously. He was returned to his room at 4 p. m. t 6 p. m. he was quiet, tolerated the pharyngeal airway, and had elash, corneal, and pupillary light reflexes but did not appear see. He appeared to respond to sound occasionally. At 8 p. m. the respiratory rate had fallen to 24. At 10 p. m. he seemed to see a friend who was in the room and extended a hand to him. He rose to his knees and voided in bed. He no longer tolerated the airway and appeared to stare constantly.

At 6 a. m. the next day he phonated loudly but did not speak. He grimaced frequently and resisted being moved. A dose of 100 cc. of human serum albumin was injected intravenously. Now good color could be maintained without oxygen. On the third day he was able to hear and see and to recognize people. He said he ached "all over," pointing to the regions just behind, or lateral to, the eyeballs. He spoke intelligently and could eat and drink easily. At 6 p. m. that day he stood and walked with assistance. Later that evening he spoke well and read small print with understanding. He wrote his name with great effort and had difficulty with the spelling. He was disoriented to time and space. He was unable to remember my name after being repeatedly prompted. Neurological findings were negative, except for the finger-nose test. That night he remained awake and was particularly active and disoriented. On the following night he was again active. He suspected his nurse and men he thought he saw on a roof of wanting to kill him. He was given 1½ grains (0.10 gm.) of secobarbital (seconal®) sodium by mouth, with good results. Hallucinations continued the next day, but only intermittently. He was now physically well, and the urinary output was adequate.

At 8 p. m. on June 25 he was irrational again and spoke of traveling from Mars and of an interplanetary war. He began to improve again on June 27. His conversation was moderately animated and reasonably intelligent. On the evening of July 1 he recognized me for the first time and called me by name. He walked only a trifle unsteadily but was still somewhat confused. On July 15 he was still continuing to improve. He conversed well and spoke of his studies, which he was eager to resume. The only change apparent to a friend who had known him well before his operation was that he was somewhat less vivacious than before. His memory for events immediately preceding the operation was imperfect but improving. A few days before he had thought he had done twice what he had really done only once and had thought that two persons had visited him when only one had been there; this phenomenon soon disappeared, and it was felt that his recovery was complete.

COMMENT

In suggesting the use of human serum albumin immediately after a period of cerebral anoxia, Seldon and associates [1] offered the following hypothesis:

> Permanent damage to the brain as a result of acute cerebral anoxia not only is a function of the duration of the anoxic episode, but also, in the case of sublethal periods of anoxia, must be conditioned by the duration and severity of a period of post-anoxic cerebral edema. It is suggested that a considerable portion of the permanent cerebral damage reported in these unfortunate cases may be the result not of the initial insult, but rather of a period of untreated cerebral edema subsequent to the initial insult.

The pathology would appear to be the same, whether it followed anesthesia or asystole: cerebral (and pulmonary) edema following anoxia. Administering human serum albumin in the post-asystolic syndrome proved to be equally beneficial here.

SUMMARY AND CONCLUSIONS

Cardiac arrest occurred during spinal anesthesia in a 21-year-old man undergoing hernioplasty. Cardiac massage was started within five minutes; asystole was present

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Chief, Department of Anesthesiology, Veterans Administration Hospital.

Reviewed in the Veterans Administration and published with the approval of the chief medical director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] Seldon, T. H.; Faulconer, A.; Courtin, R. F., and Pino, D. M.: Postanesthetic Encephalopathy: The Postulation of Cerebral Edema as a Basis for Rational Treatment, Proc. Staff Meet., Mayo Clin. 24:370 (July 6) 1949.

[2] The human serum albumin was supplied without cost by the American National Red Cross, Omaha Regional Blood Center.

for 11 minutes. Cerebral (and pulmonary) edema followed, with coma, convulsions, cyanosis, hyperpyrexia, tachycardia, tachypnea, and insensitivity to light. Human serum albumin was administered intravenously three times. Recovery was complete within three weeks.

A new weapon has been added to the physician's armamentarium in the treatment of cardiac arrest and its sequelae. During asystole, artificial respiration and artificial circulation by cardiac massage are mandatory and efficacious. After a period of anoxia, cerebral edema often appears, for which intravenous human serum albumin seems to be an agent of choice.

Veterans Administration Hospital, 74th and J St.

SPECIAL ARTICLE

This special article was prepared by Dr. Henry H. Kessler after his visit to Yugoslavia as an expert consultant to make a survey for the Technical Assistance Administration of the United Nations. The report of the survey has been submitted to the United Nations as a 150-page document. A brief summary is included in THE JOURNAL *for those physicians who have expressed an interest in foreign medical education.*—Ed.

MEDICINE IN YUGOSLAVIA

Henry H. Kessler, M.D., Newark, N. J.

One of the brightest chapters in the history of medicine is the contribution made by the medical profession in Yugoslavia. Faced by shortages of personnel, supplies, and beds, and against superhuman obstacles, they have shown a devotion to duty, a technical competence, and professional loyalty that symbolize the epic character the ideal physician.

As a result of the war, one of the primary problems facing the country and the medical profession was the great shortage of doctors—1,500 physicians were lost in the war, leaving only 6,000 to carry the burden of medical care for 16 million people. Half of the remaining doctors are 50 years of age or older. Many of them divided their time between military duties and civilian care. To the load they were already bearing was added the burden of illness and disability that resulted from the war.

Furthermore, the rapid industrialization program was producing a toll of accidental injuries that was competing with the automobile casualty rate in the United States. In the face of all these responsibilities, and in the presence of the extraordinary political, economic and social problems of the country, the record of medical activities is remarkable.

Meeting the medical needs of the nation at the close of the war became a challenging responsibility for the authorities. Because of the close association of the Yugoslavs with the Russians, it was suggested that the former adopt the Russian "Feldscher" system, a throwback to Czarist times, in which certain individuals without formal medical training were given major medical responsibilities. In rural areas particularly, the "Feldscher," whose training and experience were less than those of the corpsmen in our armed forces, and more nearly appr
those of a first-aid man or orderly, frequently as
prerogatives that included minor surgery and, oc
ally, major surgery.

The medical profession of Yugoslavia is to b
gratulated for turning down this suggestion. Th
ferred to assume additional burdens of work a
sponsibility in order to maintain their profe
standards. Thus one finds men like Professor J
the University of Belgrade Medical School, oc
not only the chair of neuropsychiatry but also th
ship of the medical school, presidency of the
Medical Society, presidency of the Yugoslav Re
and many additional positions of responsibility.
sor Nedo Zec in Sarajevo, formerly Minister of
for Bosnia-Hercegovina, is dean of the medical
professor of neuropsychiatry, director of the me
pital and professor of medical jurisprudence of
school.

MEDICAL EDUCATION

The great need for doctors forced the deve
of an ambitious program of medical educatio
there had been an old established medical s
Zagreb and a recently established medical facult
grade, there had been none in the other republi
for a short two-year course in Ljubljana, in
Therefore, the latter was extended to a full
course, while new medical schools were estab
Sarajevo for the republic of Bosnia, and in Sk
the republic of Macedonia.

These schools now have a combined enro
8,000 students. Many of these students receive
ships or subsidies from the state, and, frequently
service is deferred until the completion of thei
In the medical school at Belgrade, 4,500 stu
enrolled, and I had the unique distinction of
before 1,300 of them in the anatomy institute o
versity.

The course of study is six years, followed by
of internship and two years of service in the ru
Despite this requirement, it is difficult to get th
to practice in the country. As in capitalistic na
doctors prefer to remain in the big cities.

Despite this elaborate program of medical e
it will take 10 years to meet the goal of 16,00
since no more than 1,000 doctors can be ex
graduate each year. This has forced the auth
engage foreign doctors under contract. Banja
town of 40,000 with a 700-bed hospital, has
a gynecologist from Carlsbad who is quite hap
position and well qualified to give service.

Zenica in Bosnia, about 100 km. from Sara
town of 20,000 just emerging from the complete
tion of the Partisan War. It has a small 90-bed
catering to the needs of the local population.
is being projected as the future Pittsburgh of Y
and has been affectionately referred to as the
Ruhr because of its coal and iron resources, n
developed. A small blast furnace, forge, and rol
are already transforming the primitive country
site of heavy industry. The hazardous work o
dustry requires constant medical control, and
doctors are employed at the pits and mines. In

preemployment examinations, a full program of medi- l care is carried out at home, in the hospital, and on outpatient basis. In Zenica, a former Austrian phy- cian from Graz is now employed by the Yugoslavs. At e close of the war, the physician was liberated as a isoner of war but returned to Graz; in a few months he plied for a position as a contract physician and was nt to Zenica. His salary is 10,000 dinar a month, 4,000 nar a month greater than the salary of the local Yugo- v physicians. When the latter were asked if they sented this large difference in pay, they replied that ey were quite happy with the arrangement. If their rmer enemy was willing to return and help them rebuild e country, he was entitled to the maximum compensa- n.

MEDICAL ECONOMICS

It is difficult to translate foreign currency into dollars, ce the purchasing power of the currency and the ailability of goods influence the value of the currency. ficially, the dinar is worth two cents, or 50 dinar to e American dollar. The average pay of a doctor is 000 dinar, or $120, per month, hardly enough to take re of his needs. Roughly, it takes 12,000 to 15,000 nar for a physician, his wife, and two children to live fair circumstances. To meet expenses, the doctor's fe is frequently employed as a doctor, pharmacist, in- rpreter, or in whatever capacity her special talents stify. The combined salaries of the two help meet the eds of daily living.

The doctor is employed on a full-time salary basis and s no other income unless he takes on several jobs. For ample, the limb-fitting surgeon at the chief artificial nb factory in Belgrade spends half a day at this factory d the other half at one of the local hospitals.

University professors may carry on a private practice. enerally, the fees are about 150 dinar a visit, and if e doctor devotes enough time to his practice he can ake a comfortable living. However, he is frequently able to devote himself to his practice since his duties the medical school and hospital take up much of his ne. His position as a professor, however, affords him opportunity to earn additional revenue by giving ecial lectures, writing articles, editing books, and per- rming other extra-curricular professional assignments. urthermore, his academic position permits him better using. For example, he is permitted to have a separate om in his home for carrying out his academic assign- ents such as the preparation of lectures. He is also per- itted to have an office and examining room for his ivate patients. Housing being at a great premium, this an item of considerable importance.

About 10% of the doctors devote themselves ex- usively to private practice; some derive substantial comes, but the results are variable. Although surgeons ay charge for the visits and examinations, they cannot ake any charges for surgical procedures performed in ate or public hospitals. All incomes, of course, are sub- ct to government income tax.

The rate of wages and salaries for physicians must e evaluated in terms of compensation to workers and ther professional groups.

The average worker receives about 5,000 dinar a onth, but can increase his income by overtime work, or by work in especially hazardous occupations. The workers in the famous Litostroj steel plant, a miniature United States Steel Corporation, average about 8,000 dinar a month.

On the other hand, journalists, artists, writers, actors and musicians receive 10,000 to 12,000 dinar a month. Among the highest paid workers are coal miners, who receive up to 15,000 dinar a month.

A teacher in a school for deaf or crippled children receives 3,500 dinar a month. A student scholarship provides a subsidy of 2,500 dinar a month. If the student is married to another student, the combined income of 5,000 dinar provides them with just enough income for bare existence. This hardship can be understood from the fact that food requires about 85% of the average person's income. Clothing, which is frequently rationed at regular prices, can be bought on the free market at highly inflated prices. For example, a pair of shoes on the free market costs 4,000, a shirt, 3,000 and a suite of bedroom furniture, 110,000 dinar.

MAJOR HEALTH PROBLEMS

The Balkans are the most complex countries in the world. Centuries of invasions and counter-invasions, epidemics and primitive living have left a legacy of disease and invalidism. Conflicting religious beliefs, political allegiances, and ethnic differences served only to complicate the picture. World War II, in which 1,700,000 persons were killed, performed the great miracle of unifying the various elements, however.

The major health problems are those of infectious diseases. Typhus and malaria, rampant for centuries, have just recently yielded to the magic touch of dichlorodiphenyltrichloroethane (DDT). Endemic syphilis involves 10% of the population of Bosnia. Of all the diseases, tuberculosis is the great maimer and killer—the incidence runs from 1.1% of registered cases among the population of Ljubljana to 2% in special sections of the country studied by Neubauer. If Neubauer's ratio were applied to the total population of 16 million, it would reveal a tuberculosis incidence of 320,000 cases.

It has been estimated that 500,000 men, women and children, victims of war injuries, accidental injuries, disease and congenital defects, require rehabilitation services.

PUBLIC HEALTH ORGANIZATION

To meet these needs, Ministries of Health and Ministries of Social Affairs have been established in each of the six republics: Serbia, Croatia, Slovenia, Bosnia-Hercegovina, Macedonia, and Montenegro. At the federal level, the Federal Committee of Health coordinates the work of the ministries of health in the various republics. This department controls the sanitary services, all preventive and curative medical services including hospitals, sanatoria, polyclinics, dispensaries, mobile hospital units, and all the medical personnel including those concerned with medical education in all its aspects.

The Minister President of the Federal Committee of Health meets with the Ministers of Health of the various republics to review the health problems of the nation. The results of these conferences are translated into legislative recommendations which are then passed on to the President of Parliament and may be enacted into a law

(*Zagrund*) or, where emergency conditions require it, an *Urbar* or decree. These are sent to Marshal Tito for signature and go into effect immediately.

SERBIA

In southern Serbia there are 500,000 shepherds who live under the most primitive circumstances, constituting a health menace not only to themselves but to the entire nation as well. The need for public health education to raise the level of health interest and intelligence is concomitant with the need for improved living conditions.

There are 55,000 hospital beds in Yugoslavia, of which 17,500 are in Serbia. In Belgrade, in addition to the state or national hospital of 1,000 beds, there is a 2,000-bed military hospital. Several private hospitals have been taken over by the government. One of these, a 100-bed hospital, has been converted into a plastic surgery unit with a staff well trained by several British plastic surgeons. Another 60-bed hospital has been converted into a traumatologic or emergency hospital, while a third, a former private sanitarium, contains 50 beds for general medical and surgical purposes.

Medical services are carried out, for the most part, in polyclinics or outpatient dispensaries. Regional polyclinics are available to meet the needs of different sections of the city, with one very large central polyclinic (a former office building) providing the major diagnostic and treatment facilities.

The need for auxiliary medical personnel is as great as the need for doctors. From 1918 to 1941 only 1,253 men and women graduated from the middle medical technical school as nurses, nurses' aides, x-ray technicians, laboratory technicians, and physical therapists. In the past few years 56 new schools have been established, from which 1,750 were graduated in 1949.

Fifteen to 20 medical journals are published throught Yugoslavia, with summaries of articles in French and nglish. The problem of supplying books to the medical students has been partially met by the publication of medical books in Serbian by the government printing office.

Among the outstanding medical personalities in Belgrade is Professor Dimitrije Jovcic, professor of orthopedic surgery and director of the surgical section of the children's clinic. Following the tradition of Ombredanne, his preceptor, he carries out the entire gamut of childhood surgery including general surgery, neurosurgery, orthopedic, and plastic surgery. Professor Voia Stojanic, in charge of general surgery, is another prominent surgeon who is well known for his contributions to his field and for his visits to various international meetings.

MACEDONIA

Suppressed by long years of political problems, Macedonia nevertheless exhibits a fierce will to wipe out its centuries-old cultural lag in a comparatively short time. Illiteracy is gradually being abolished. The problem of minority groups still exists, but the many Albanians, Shiptars, Turks, and Bulgars are permitted to use their own languages, schools and religions, and carry on their own cultural activities.

The determination of the Macedonians to catapult themselves into the 20th century is especially evident in
Skoplje, where the swift Vardar separates the old
from the new. In the new town one observes the eli
tion of the old Turkish quarters, with their foci of di
and the creation of large squares. Modern building
pear anachronistic next to the remaining struc
Crossing the bridge into the old town is like returni
the middle ages, with its medieval atmosphere a
melange of diverse national and ethnic groups prac
the customs of 500 years ago. There are narrow n
roads that pass for streets, and open bazaars. In con
one also sees long queues before the various shops
rationed goods, women with veils which they fur
remove when crossing the bridge to the new tow
just as furtively replace when returning to the old.

In Skoplje one finds some of the most rapid pr
made under present conditions as compared to p
and immediate postwar periods. A new medical s
accommodating 500 students, has been establish
university hospital of 800 beds caters to the needs
city's population. An idea of the frenetic efforts t
the training of medical and ancillary personnel n
gained from the projects already completed and i
ress. Five hundred men and women are being trai
nurses' aides and dental aides. One hundred mi
are attending a midwifery school. There is a sch
dental mechanics.

There are four dispensaries in addition to th
polyclinic serving the needs of the local populatio
dispensary has facilities for dental care. In addi
the general dispensaries, there are 14 childre
pensaries and 13 children's mobile health units in
donia. The differences lie in the fact that the do
the dispensaries make house visits while the
health units provide outpatient services only.

Professor Jubasic is the outstanding surgeon, c
ing a highly organized and skillful service of 200
the university hospital.

BOSNIA AND HERCEGOVINA

Bosnia, which is now becoming the center o
industry, was the scene of the heaviest guerilla
in the war. It has a population of 2,700,000, o
one million are Moslems. Until 1918 it was r
Austria. Between 1918 and 1941 the economi
the average individual had changed little from the
ism that had previously existed. Under such
stances, there was never any money to buy soap
linen. Centuries of living in filth had inured the
to any possible hazard of disease, about which t
little knowledge and less interest.

Sarajevo, the chief city of Bosnia, has a po
of 140,000. It is noted as the place where the Firs
War had its beginning. The university clinic, a 1,5
hospital, is in Sarajevo. Professor Kovacic, head
320-bed surgical service, sparks the institutio
organization of the hospital, the technical skill dis
and the quality of service and care would mea
to that found in the hospitals of any modern A
community.

Nevertheless, the incidence of disease and in
is still very high. There are 15,000 cases of acti
monary tuberculosis registered in Bosnia-Herce

ere are four to five thousand cases of bone tubercu- is, a higher incidence than in Macedonia, which has en attributed to differing customs of food preparation the two republics.

An interesting feature of public health legislation has en the removal of all veils from Moslem women. This itary measure revealed that many men were masque- ing as women.

Industrial accidents, accounting for 24% of the mor- lity rate, is a serious public health problem. The inci- nce is second only to gastrointestinal disorders, with incidence of 32%.

Zenica, a city 100 km. north of Sarajevo, is the scene a rapidly developing heavy industry. The small 90-bed spital is inadequate for the needs of the miners, the el workers, and the community.

Banja Luka, in the northern section of Bosnia, was scene of heavy fighting during the war. Fifty per cent the city was destroyed and the ravages of war are still evidence. Nevertheless, the city boasts a modern 700- l hospital which serves not only the city but also 700,- 0 persons in the environs. Tuberculosis is the chief lth problem, but endemic syphilis, rickets, malnu- ion and rheumatism also abound.

DALMATIA

The favorable climatic conditions of the Dalmatian ist have made it a favorite area for rest homes, hotels weary workers, and sanitoria for the treatment of ne and joint tuberculosis. Treatment in the sanitoria conservative, with prolonged bedrest, streptomycin, tension, and plaster immobilization.

SLOVENIA

Slovenia, with a population of 1,400,000, is one of most progressive of the republics and has a high ndard of living. There are 6,500 hospital beds in venia, of which 700 are devoted to pulmonary tuber- losis, and 200 to bone and joint tuberculosis. The medi- l school has been expanded since the war and now ludes a five-year course which will soon be extended six years. There is an 1,800-bed general hospital, in iich 6,000 operations are performed annually. Gastro- testinal diseases are first in the morbidity statistics, th accidental injuries second. There is a high incidence cancer.

CROATIA

Croatia, the second largest republic in Yugoslavia, has population of over 3,500,000. Zagreb, its chief city, uses the oldest medical school in Yugoslavia, the ugoslav Academy of Science, and the institute of public alth. The institute, established many years ago with e help of funds from the Rockefeller Foundation, is ider the direction of Dr. Stampar, one of his country's itstanding personalities. The institute of public health fers graduate and undergraduate courses in the fields public health and industrial hygiene. The institute has any laboratories, a library, museum, and photographic cord department. The institute, with its staff, is doing ioneering work in the increasingly vital field of public nd industrial health and hygiene.

SUMMARY

This survey of health conditions and facilities in Yugoslavia reveals, first of all, the intense devotion of the medical profession to its responsibilities under the most difficult conditions. Secondly, one observes the great need of the Yugoslav physicians for contact with the scientific literature of the past decade. My meeting with Marshal Tito indicates that the profession will be given this opportunity through books, periodicals, films, and personal contacts. I recommended to the United Nations that 20 fellowships be established to permit Yugoslav medical personnel to visit Great Britain and the United States.

The philosopher Paulsen has said that the object of all help is to make help superfluous, and this ideal is being realized through international action.

53 Lincoln Park.

COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

This paper is one of a series requested by the Council on National Emergency Medical Service to inform the medical profession on problems pertaining to civil defense. It does not necessarily reflect, however, the opinions of the Council or of any other official body unless so stated in the article.

C. Joseph Stetler, *Secretary.*

MENTAL HEALTH AND CIVIL DEFENSE

Ozro T. Woods, M.D., Dallas, Texas

The national concept and philosophy of civil defense developed during World War II. It was the first time in warfare that the people at home were in danger from attack. We hurriedly set up a civilian defense organization. We developed a program while conducting the war. As the war progressed more successfully, the civil defense effort receded rapidly. It was practically abandoned by the end of the war. Civil defense contributed little to the winning of the war. Citizens in general did not then, and do not now, understand the relationship of a civil defense to the strength or survival of the nation, for this country has never experienced a crisis in which a long-sustained, supreme effort on the part of every citizen and each community was necessary for national survival. The comfortable family and community way of life has been relatively little disturbed by our last two wars.

CIVIL DEFENSE AND NATIONAL SURVIVAL

We can learn something from the experience of Germany in civil defense. Because collapse on the home front had been an important factor in their losing World War I, ". . . emphasis was placed on the fact that the emergency medical services had to be organized, equipped, and trained before World War II started. The completeness and excellence of the service were publicized for their effect on the morale of both civilians and military. The

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Chairman, Council on National Emergency Medical Service, Texas State Medical Association; Associate Director, Civil Defense, and Chairman, Health Division, City of Dallas. Director of the Emergency Medical Services studies in the Civilian Defense Division of the United States Strategic Bombing Survey in Europe following World War II.

soldier at the front was assured that every protective measure was being taken for his family at home because of the experience gained in the first war when worry about home conditions had had a demoralizing effect on the troops."[1] The morale-building influence of an excellent civil defense plant protection was largely responsible for the low rate of absenteeism in the submarine shipyards in Hamburg that were bombed almost daily.[2]

This nation and its allies are now facing an enemy whose strength, resources, and methods of attack challenge us as a people to be strong, determined, and prepared on the home front as well as on the military front. There is a tendency to feel that the only danger is in the area of military combat. The activities of our enemy are known in other parts of the world. Our country faces these same dangers. I think they are best described by Paul G. Hoffman,[3] "To most of us, war's aim and end is victory on the field." To the Kremlin, military action is but the most visible and spectacular zone of combat in an unremitting war against a free world. Herein lies the strange, new, and often hidden danger—a danger we cannot fend off by arms alone. We must realize that, for the Kremlin, the military is only one of four fronts, each a battleground of implacable attack. These four fronts are the military, economic, political, and psychological. Lenin himself has defined them. He has declared that they comprise the four interlocking parts of a "most determined and ruthless war, a persistent struggle, bloody and bloodless, violent and peaceful, military and economic, educational and administrative, against the forces and traditions of the old society." Every level of our government, from federal to local, must facilitate and coordinate efforts to meet these dangers.

ROLE OF MENTAL HEALTH IN CIVIL DEFENSE

Within the people themselves are the ultimate resources for winning a peaceful world. There is a measurable limit to the supply of copper, tungsten, or other materials for making weapons to wage war. There is almost no limit to what a determined and resourceful people can do when they are strong and healthy, behave intelligently, and utilize their resources effectively. The organization of intelligent behavior is an important function of civil defense. The President has appointed Gordon Gray to head a board to coordinate the "strategic psychological warfare of ideas with the military and economic phases of our foreign policy." This long-needed board operates at a super-Cabinet level. There is no adequate machinery to coordinate the civilian activity in our domestic defense efforts in a similar manner. Some of these functions must be assumed by civil defense. There must be planning and education in order to develop an effective psychological defense through every organized, functioning group in society (governmental, professional, and social).

Into our thinking must come a determined conviction that the American way of life must be protected by developing and improving it. Our place in international society
must follow biological laws in which increasing v
and strength of growth are the determining factors. W
chairman of the National Security Resources Bo
W. Stuart Symington said, "Health and strength are
and the same. Survival of the fittest was the law of pr
tive jungle and is, in fact, the law of all life on this e
As a nation, we are strong today because we are he
in mind and body. We know that our basic strengths
prevail against any attack. But we must be eternally
lant to increase our powers to the full. We must be st
to survive as a free nation." Health and welfare ser
of civil defense are its most important activities.
citizen's interest in civil defense, even if it is apathe
largely in the health and welfare field, and Congres
given most of the meager funds to it.

The emotional unrest and confusion about civil de
is the immediate mental health problem. It should
great concern to everyone that there is not devel
rapidly a strong civil defense program. To many
defense means picking up the pieces after an atta
order to stimulate interest, the dangers of the a
bomb and biological warfare have been empha
Many people are frightened and anxious. The cr
of fear will never build a sound civil defense.

THE PHYSICIAN AS A MORALE BUILDER

You may wonder why practitioners of medici
involved in these matters. The reason is so natur
it does not seem obvious at first thought. In ti
stress, uncertainty, and anxiety people go to their
cian for help. Counseling is one of the physician'
cherished functions in society. To his patient, the
cian is an authority on health and how to maintain
the feelings of the individual citizens who are our p
that make up the mental health of the nation, o
may be called morale or patriotism. People expec
physician to prepare himself by training and prep
to meet every health need in this emergency. The
to be assured that their own physician knows l
treat the injuries caused by the atomic bomb, by
cal warfare, and by biological warfare. They sho
told how these special weapons cause injury. Th
lose some of their fear of the atomic bomb whe
learn that less than a fifth of the serious injuries
be caused by radiation and that recovery from ra
injury leaves persons relatively normal and not
When they learn about these injuries, they will
stand the plans that are made for their protection
will learn how to protect themselves.

Every new weapon that has been developed h
much of its effectiveness as soon as its limitation
understood. The only way to forestall flight and p
to have every citizen know that his chances of s
are better if he understands and cooperates wit
defense planning. This planning is based on
studies and will have well-selected and well-traine
ership. I think the physician has a duty and an
tunity to exercise the leadership in his communi
his profession provides. Physicians come into c
with many people; they receive many confidence
need to learn how to help our patients face the th
our nation and a free world and how to protect
selves so they can participate to the fullest in o

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[1] United States Strategic Bombing Survey, Final Report of Civilian Defense Division, 1947, p. 55.

[2] Personal observation in study of Emergency Medical Service in Industry, Strategic Bombing Survey.

[3] Hoffman, P. G.: Peace Can Be Won, Garden City, N. Y., Doubleday & Company, Inc., 1951, p. 14.

ıal defense. Every citizen's effort is important and essary to build the national defense, no matter where ives or what he does. Our responsibility and services ivil defense are just as important as our obligations he armed services.

TRAINING OF PHYSICIANS

rganization.—Responsibility for the organization of health program of civil defense has been largely ed in the hands of local and state public health ers. We, as practitioners, have had little part in planning of civil defense, although we are the ones must furnish the health services. Following the tradi- which has characterized our profession, we have the of training ourselves. This, I think, should be the onsibility of organized medicine at the national, e, and county society level. Every state association been asked to organize a Council on National Emer- cy Medical Service. Every county society should have ivil Defense Committee. The Texas State Medical ociation has given its Council on National Emergency lical Service the responsibility of organizing and con- ting teaching courses for its membership. This coun- s to work with the Council on Public Relations in ulating physicians to assume community leadership ivil defense.

eaching Materials.—Most of the information needed these training courses is in preparation and will soon vailable. These materials are being organized by the lth and Welfare Division of the Federal Civil Defense ninistration. A large part of the preparation is being e by such authoritative bodies as the National Re- ch Council and the Department of Defense. We uld ask the Federal Civil Defense Administration to pare outlines in the form of texts and references for teaching.

ubject Matter.—The teaching material can be roughly sified under two subjects. The first is the nature of special weapons of warfare and how they cause in- es. The treatment of these injuries is the same as we in every day practice. We need to learn only a few cial techniques of treatment and to adapt ourselves to e standardizations of treatments so we can work with er physicians and with the supplies that will be fur- ed.

he second subject is that of mental health or psycho- ical defense. This can be discussed under two head- : (*a*) the emotional needs of the individual patient; prevention and control of panic or group disruptive avior.

EMOTIONAL NEEDS OF THE INDIVIDUAL

Many patients needing the attention of a physician l be victims of emotional as well as physical trauma. ce there will not be enough psychiatrists to meet the d, every physician must learn some of the skills and hniques required to calm the fears of these patients. h emotional states are not complicated. They arise m a known cause;[4a] they are of short duration and are mmon to many patients; they can be dealt with simply d directly. The physician will often be treating patients om he knows; or the patients will know of the physi- n, and he will be completely acceptable to them. The physician can assure the patient that he knows how to treat the injuries. He can explain to the patient the necessity of his accepting some of the new and strange experiences he may have in being treated along with large numbers of others. Our job can be described as the prevention and direct treatment of fear.

It will be important that serious emotional disturbances be detected and that the patients affected be directed to some center where they can be observed and treated by psychiatrists. This must be done skillfully in order that the procedure of arranging for better care does not add additional emotional trauma. Such patients must not be labeled as different, nor should they be sent to mental hospitals until it is determined that they need such serious and extensive treatment. Most of this group—and from the English experience in World War II it will be a relatively small group[4a]—will probably respond to simple treatment by skilled psychiatrists.

Teaching the practitioner the simple techniques of psychological first aid is very important.[4b] It will not be easy. There has been considerable experience in postgraduate courses lasting one to three weeks. The subject will have to be reduced to its simplest elements and prepared in a palatable form. It will have to be presented in about an hour's time. The Civil Defense Committee of the American Psychiatric Association is preparing a suitable primer for the Federal Civil Defense Administration.

PREVENTION OF PANIC

Group panic and other mass disruptive reactions present a problem that awaits further study.[4c, d] The role of the physician in the prevention of poor group behavior is not clear, nor have general plans of education or training to prevent or control it been formulated. Poor group behavior in time of stress must be studied. Such behavior may be due to alarm reactions to either true or false reports or rumors. It may vary from staying away from work, due to changes in motivation, to war panic, mob hysteria, and the like; or there may be public apathy, lack of concern, and other evidences of repressed emotion. The need for studies is recognized by every responsible group in the field of mental health and in the Departments of Defense.[4] Well-planned studies are under way and more are being projected. To realize how important these studies are, one has only to recall the panic that resulted from Orson Wells's radio broadcast, "The Invasion from Mars," and the chaos and poor group behavior in the Texas City explosion, as well as many other historic instances of panic.

Until these studies result in a planned program, we physicians will have to rely on known aids to emotional security. A brief listing would include (1) information about the nature of the special weapons of warfare, calling attention to their limitations and to the protection afforded by the type of construction of our buildings as contrasted with that of the Japanese buildings; (2) knowledge of and understanding of the plans made to care for people; (3) emphasis on the importance of everyone having a job to do and the contribution of that job to the total effectiveness of our protection; (4) strong leadership that inspires confidence; (5) adequate welfare plans; (6) mutual aid plans (surrounding communities coming to the aid of a damaged community) understood by everyone; and (7) local mental health programs. We must realize that we are being subjected to psychological warfare, and we must learn to identify it.

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[4] (*a*) Waggoner, R. W., and Himler, L. E.: Psychiatric Aspects of Civilian Defense, J. Michigan M. Soc. 50:278-281 (March) 1951. (*b*) An Introduction to the Psychiatric Aspects of Civil Defense, Committee on Cooperation with Governmental Agencies of the Group for the Advancement of Psychiatry, Report No. 19. This excellent study with a bibliography is available to any professional person on request of two or more copies at 10 cents each from Group for Advancement of Psychiatry, 3617 West Sixth Ave., Topeka, Kan. (*c*) Caldwell, J. M.; Ranson, S. W., and Sacks, J. G.: Group Panic and Other Mass Disruptive Reactions, U. S. Armed Forces M. J. 2:541-567 (April) 1951. (*d*) Cameron, D. C.: Psychiatric Implications of Civil Defense, Am. J. Psychiat. 106:587-593 (Feb.) 1950.

Although it is more important to prevent group disruptive behavior, plans must also be made to interrupt it in its early development when it does occur and modify its course. So far, no program other than ordinary police function has been proposed. It may be possible to have what might be described as an intelligence service, in which competent observers widely scattered through our society would be alert to unusual group behavior or stories that might be the beginnings of serious rumors. They could report these to a selected group of citizens made up of social scientists, personnel directors, psychiatrists, and others who deal with groups, such as teachers. This selected group, in conference, would be in a position to advise what course should be taken and could work in an advisory capacity with police. It does seem that we should plan as intelligently as possible in facing these problems so vitally concerned with a healthy society.

SUMMARY AND CONCLUSION

Military combat is only one of the methods of warfare of our enemy. The others are political, economic, and psychological. Civil defense means more than an organization to treat injured or "pick up the pieces." It means n organized, intelligent effort to make our nation strong to meet any danger or attack. The public's major interest in civil defense is in the health and welfare division. The people expect us to be the leaders in health and welfare. We have never had a greater challenge to assume leadership as an organized profession or as individual citizens. We must train ourselves to do the job that is expected of us. With preparation, we have in our relationship with patients and as community leaders the opportunity to be a major force in building strength and courage needed for survival as a nation.

4105 Live Oak St.

Cancer Research.—It has become popular to decry the progress which has been made in the cancer field and to deprecate the possibility of advance in the future. Were history not so full of similar melancholy statements made regarding other disorders at times when irrefutable evidence to the contrary was at hand, the present cries of alarm might give concern. True, the problem is a difficult one, and the techniques complex. Recall, however, that most work on cancer has been on a random basis and so has included a broad study of natural phenomena relating to growth in general. This has restricted studies designed specifically to attain chemical control of the disease. In spite of the fact that substantial funds for cancer work have been available only since 1945, and that only a small part of them has been allotted to therapeutic studies, the progress has been gratifying indeed.—Cornelius P. Rhoads, M.D., The Experimental Method and the Cancer Problem, *Bulletin of the New York Academy of Medicine*, October, 1951.

COUNCIL ON PHARMAC
AND CHEMISTI

REPORT OF THE COUNCIL

The Council has authorized publication of the f
report.

R. T. Stormont, M.D., *Secr*

MISAPPROPRIATION OF SCIENTIFIC TERMINOLOGY FOR DRUGS

Generic (nonprotected) names for drugs are of scien
portance to all investigators and physicians. More gener
of established scientific drug terminology in prescriptio
lications, and speeches obviates confusion and constitut
toward simplification of world-wide nomenclature fo
peutic agents.

One of the obstacles which hinders universal employ
nonprotected drug terminology is the practice of traden
istration of generic names (or their near equivalent) ou
legal jurisdiction of the country of origin. This prev
free use of generally recognized nonprotected termin
the country which permits trademark registration of suc
Information available to the Council indicates that this
is often followed in various countries by pharmaceutic
facturers who either do not realize the universal impo
scientific terminology for drugs or are motivated chiefly
merical interest. The extent of this is revealed by the
partial list of names registered, or applied for regist
various foreign countries. These names are identical to
closely resemble, the nonprotected terminology adopt
United States:

aminophyllin(e)
antitoxon (antitoxin)
ascorbic (acid)
bacitracin
cortisone
estradiol
foliacid (folic acid)
heparine (heparin)

hexylresorcinol
histamin(e)
neostigmin(e)
penicillan (penicillin)
procain(e)
progestone (progesterone
sulfacetamide
testosteron(e)

The Council wishes to bring this matter to the attent
pharmaceutical firms, appropriate government agen
scientific groups throughout the world. It is hoped th
of generic names for drugs, irrespective of the country
eventually may be outlawed in the interests of univer
tific cooperation. Legal immunity provided by the limit
diction among countries does not justify usurpation of
names recognized elsewhere. The generic status of r
ture formally adopted by recognized scientific group
country should be universally respected by pharmaceuti
facturers.

The Council issues this statement with the warning th
of scientific terminology for drugs is highly detrimen
dissemination of knowledge concerning drugs and ther

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepte
forming to the rules of the Council on Pharmacy and C
of the American Medical Association for admission to
Nonofficial Remedies. A copy of the rules on which th
bases its action will be sent on application.

R. T. Stormont, M.D., *Sec*

Hyaluronidase.—Alidase (Searle).—Wydase (Wyeth).

Hyaluronidase is an enzyme or enzyme-complex
capable of hydrolyzing the mucopolysaccharide, hyalur
It can be isolated from various bacterial cultures or a
sues. The activity of the enzyme is usually determined
measuring the reduction in turbidity which hyaluroni
duces when it acts on a substrate containing native hy
and certain proteins, or by measuring the reduction in
which hyaluronidase produces on a buffered solution c

potassium hyaluronate. At present, each manufacturer defines product in terms of turbidity or viscosity units, depending the system of standardization used. These units are not equiva- since they are measures of different properties of the enzyme.

ctions and Uses.—Hyaluronic acid, an essential component the "ground substance" of tissues, limits the spread of fluids other extracellular material. Since hyaluronidase destroys ue hyaluronic acid, injected fluids or other material tend to ad further and faster than normal when administered in junction with this enzyme.

Iyaluronidase may be used to increase the spread, and con- uently the absorption, of hypodermoclysis solutions; to dif- local anesthetics at the site of injection, particularly in nerve k anesthesia; and to increase the diffusion and absorption of r injected materials such as penicillin.

Iyaluronidase also enhances local anesthesia in surgery of eye. It is useful when administered as a cone injection in ıcoma, since it causes a temporary drop in intraocular ssure.

Iyaluronidase is practically nontoxic, but caution must be l in administering it to patients with infections. The enzyme cause local infections to spread through the same mechan- by which the spread of injected solutions is facilitated. *Until her evidence is available, hyaluronidase should not be in- ed into or about an infected area.*

ensitivity to hyaluronidase occurs infrequently. It can be dis- ered by testing the skin in the usual manner.

osage.—Hyaluronidase is supplied in dried form because it riorates on standing in solution. The extemporaneously pre- d solutions for injection should contain 150 turbidity units 500 viscosity units dissolved in 1 cc. of isotonic sodium ride solution or, with the appropriate amount of that salt, istilled water. This solution is added to each 1,000 cc. of odermoclysis fluid or injected at the site to be employed nediately prior to instituting the clysis. Special care is ad- ble in pediatric patients to control the speed and total volume fluid administered to avoid over-hydration; in children less n 3 years of age the volume of a single clysis should be limited 00 cc.; in premature infants and during the neonatal period, daily dosage should not exceed a volume of 25 cc. per gram of body weight; the rate of administration should not eed 2 cc. per minute. In adults the rate and volume of ad- istration should not exceed that employed for intravenous sion.

he agent also is used for addition to drug preparations or small amounts of anesthetic solutions for subcutaneous in- ion. For nerve block or infiltration requiring larger amounts anesthetic solution, 150 turbidity units or 500 viscosity units l 0.5 cc. of epinephrine hydrochloride 1:1,000 are added to h 50 cc. of solution and injected intracutaneously, subcutane- ly, or intramuscularly.

or local anesthesia of the eye, 150 turbidity units or 500 cosity units are dissolved in 1 cc. of a 2% procaine hydro- oride solution (or equivalent amount of other anesthetic to used) and 0.4% potassium sulfate. For nerve block, 0.4 cc. this mixture is diluted to 10 cc. and 0.12 cc. (two drops) of nephrine hydrochloride 1:1,000 is added prior to injection. r cone injection, twice as much epinephrine may be used.

Alidase (Dried): Ampuls containing 500 viscosity units of wdered hyaluronidase and 9 mg. of sodium chloride. G. D. arle & Company, Chicago.

Lyophilized Wydase: Vials containing 150 or 1,500 turbidity- lucing units of powdered hyaluronidase. Preserved with 0.01 d 0.2 mg. of thimerosal, respectively. Wyeth, Inc., Phila- lphia.

citracin (See New and Nonofficial Remedies 1951, p. 43).

Ointment Bacitracin: 14 gm., 28 gm., and 112 gm. tubes. An tment containing 500 units of bacitracin in each gram. Eli lly & Company, Indianapolis.

Ophthalmic Ointment Bacitracin: 7 gm. tubes. An ointment ntaining 500 units of bacitracin in each gram. Eli Lilly & mpany, Indianapolis.

Solvets Bacitracin: 2,500 units. Eli Lilly & Company, dianapolis.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

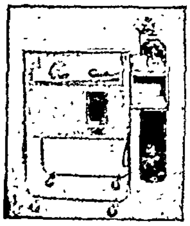
The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

Ralph E. De Forest, M.D., *Secretary.*

BABY'S HAVEN, MODEL NB5, MULTIPURPOSE INFANT UNIT ACCEPTED

Manufacturer: *Modern Hospital Equipment, Inc., 113 S. 10th St., Minneapolis 3.*

The Baby's Haven, Model NB5, Multipurpose Infant Unit is a device for housing normal or premature infants, administering oxygen therapy to infants, or isolating infants with contagious diseases. It is provided with casters so that it can be moved about on the floor, has a transparent front so that the infant can be watched from some distance, and has connections for oxygen and electricity. It stands 117 cm. high (46½ in.); the other dimensions are 50 and 30 cm. (31½ and 19¾ in.). It weighs 48 kg. (106 lb.). Prepared for shipment it measures 117 by 86 by 55 cm. (46 by 34 by 21½ in.) and weighs 57 kg. (125 lb.). The foreign shipping weight is the same, and the shipping weights include one sleeping mattress. Accessories not included in the shipping weights are a linen and sanitary supply compartment and an oxygen tank holder. The apparatus requires a supply of 60-cycle alternating current of 115 volts for operation, and draws 330 watts of power.


Baby's Haven, Model NB5, Multipurpose Infant Unit.

From acceptable sources the Council obtained evidence that this device was well constructed and that its performance was as represented by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Baby's Haven, Model NB5, Multipurpose Infant Unit in its list of accepted devices.

KENNIT ELASTIC HOSIERY ACCEPTED

Manufacturer: James R. Kendrick Company, Inc., 6139 Germantown Ave., Philadelphia 44.

Kennit Elastic Hosiery is intended to be worn by patients who need restraining pressure on the surface of the legs, from the metatarsal region to the level just below or just above the knee, particularly in circulatory disorders such as varicose veins. What is described as a two-way stretch is obtained by means of covered elastic yarn reinforced with mercerized cotton. The heel is closed in order to combat swelling in that area. The stocking is made in three styles. *Style K-1* is a garter-type with an open toe and elastic top which comes to below the knee. *Style K-2* is similar in style but has a soft top, from below the knee to the mid-thigh. It is kept in place by the garter from the girdle. *Style K-3* is similarly styled, but the elastic support extends above the knee, and it has a soft top for attachment to the girdle. A single elastic hem at the toe prevents the pressure of a double thickness. All styles are shaped for the average leg, and come in four sizes.

Kennit Elastic Hosiery

The Council obtained, from qualified sources, evidence indicating that these stockings were satisfactory both when tested under laboratory conditions and when worn by patients in clinical trials. The Council on Physical Medicine and Rehabilitation voted to include the Kennit Elastic Hosiery, Styles K-1, K-2, and K-3, in its list of accepted devices.

THE JOURNAL
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THE LOS ANGELES MEETING

The Fifth Annual Clinical Session of the American Medical Association, held in Los Angeles, Dec. 4-7, was an outstanding success in attendance and in interest in the program. The attendance exceeded that of any of the previous Clinical Sessions. The number of physicians who had registered by the final day of the meeting was over 4,400. Swelling this attendance were more than 4,600 guests, including residents, interns, medical students, nurses, and technicians. While the program had been carefully arranged to provide special interest for general practitioners, there was a sufficient variety of subjects and activities to appeal to others than physicians. The scientific and technical exhibitors were pleased with the attendance and interest shown by those who attended the meeting.

There were clinical demonstrations and lectures on more than 300 subjects, a scientific exhibit of 90 or more displays and demonstrations, and motion pictures and television embracing many topics. Medical and television history was made when the first colored television was shown on a coast-to-coast hook-up. Originating in Los Angeles, this demonstration was seen by medical audiences in this city and simultaneously in Chicago and New York. While the possibilities of television for teaching have long been discussed by physicians interested in visual education, no transcontinental arrangement of colored television had ever been attempted before. The results demonstrate beyond question the potential value of this medium for education.

A résumé of the proceedings of the House of Delegates and other important events at the Los Angeles meeting will appear in the December 22nd issue of THE JOURNAL. And in this and subsequent issues will appear some of the papers presented at scientific, public relations, and other meetings. An earlier issue of THE JOURNAL published the scientific program, which, along with the exhibits offered by 150 manufacturers of equipment, pharmaceutical, and food products, and by book publishers, created the popularity of papers, demonstrations, and exhibits.

The scientific program at clinical sessions is not organized into scientific sections as it is at a regular annual meeting; nevertheless at Los Angeles numerous sessions were devoted primarily to pediatrics, dermatology, diseases of the chest, cardiovascular diseases, obstetrics and gynecology, general surgery, general practice, urology, industrial medicine and surgery, eye, ear, nose and throat, radiology, anesthesia and pathology, traumatology as related to civilian defense, and medical blood banks. Other sessions included general lectures of in
est to all physicians, which were presented by wid
known speakers.

Among the special features of the scientific exhibit w
an exhibit symposium on overweight, nutrition, a
health, which was followed by a question and ans
period. The five exhibits on this subject were conti
ously demonstrated throughout the week. There wa
special exhibit on fractures, at which treatment
stressed by demonstrators, which was also held conti
ously throughout the week. In addition, there could
found mannequin demonstrations on birth problems
an exhibit symposium on noise and health. The ne
adopted method of artificial respiration, which was
cussed in detail in THE JOURNAL, Dec. 8, page 1444,
demonstrated by the authors and attracted much at
tion.

Among the actions taken by the Board of Trustees
an appropriation of another half million dollars to
American Medical Education Foundation, which
been raising funds within the medical profession du
the last year for the nation's medical schools. The f
dation was founded at the December, 1950, meetin
the American Medical Association in Clevelan
which time the Board of Trustees announced an ap
priation of a half million dollars as a nucleus fund
raised by the medical profession to assist medical sch
Since then, additional funds have been contribute
national, state, and local medical societies, indiv
physicians, and some nonmedical persons. A full
office for the foundation has been created and is lo
at the headquarters of the American Medical As
tion. This office is necessary to assure the attentio
the foundation deserves, but in no way causes a fin
drain on the funds collected, as the American M
Association is underwriting the total expenses in
in raising these funds. Thus, every dollar that is co
ted is allocated, with no loss for administration, to
ical schools.

Among the visitors to the House of Delegates
American Medical Association was Donald R. W
Clarksburg, W. Va., national commander of the
ican Legion. In an inspiring address he paid tribute
American physician and his determination to p
basic answers to the problems of medical care faci
people of this country. He warned that the medica
fession must be the watchdog of American healt
that the American people must look to it for lead
planning, and results. He said in part: "You may d
on us to carry our full share of what is primaril
battle. We shall do it not only for your good but a
the good of the American people. We see and unde
your problem and are prepared to render whateve
ice we can."

Some idea of the interest and appeal of this m
of the American Medical Association was reflected
coverage provided by newspaper and magazine w
This was the largest group of writers ever assigned
port on a Clinical Session of the American Medical
ciation. Los Angeles and other West Coast news
gave liberal amounts of space to physicians and t
ical achievements. In fact, one prominent civic
said on the last day of the meeting that he had neve
so much space devoted to one organization at an
in Los Angeles. This response by the press was ta
many observers as an indication of the increased
larity of the Clinical Session of the American M
Association.

ESISTANCE TO INSECTICIDES

Because of the great military and civilian importance the newer insecticides in the control of malaria, pedicosis, and other insect-borne and insect-caused diseases, is disturbing to note that an increasing number of sect species are becoming resistant to these compounds. a recent symposium[1] on the subject presented at the nual meeting of the National Malaria Society in Chigo, it was pointed out that in many parts of the world ains of the house fly, the mosquito, and the bed bug ve become resistant to a variety of insecticides and it most recently the body louse in Korea has become ghly resistant to DDT.[1a]

According to the investigators who participated in the mposium, the pattern of resistance is characteristic. It velops most readily in the domesticated, adaptable ecies and first appears after the insecticide has been use in a given area for one to five years.[1a] In the mosito it appears more rapidly when the larvae as well as adults are sprayed.[1b] Exposure to one compound may luce resistance not only to that compound but also related insecticides. Flies made resistant to DDT, for ample, show a cross resistance to methoxychlor, while ose made resistant to lindane, chlordane, or dieldrin o show resistance to the other two members of this oup.[1c] Once resistance to a single compound or group compounds develops in a strain, that strain tends to come resistant to other insecticides more rapidly. The use fly that requires 6 to 12 generations to develop sistance to DDT in the laboratory may then require ly one or two additional generations to develop resistce to other compounds.[1c] Strains that have become sistant do not usually revert to the nonresistant state ter withdrawal of the insecticide.[1a]

The mechanism of resistance in insects may be physiogic, anatomic, or behavioral.[1a] Slight metabolic differces in some strains may permit them to carry on vital nctions even in the presence of insecticides. Morphogic variations in others may prevent the lethal action these drugs, while peculiarities in behavior in still hers may have survival value. In a DDT-sprayed buildg, flies that tend to settle on horizontal, untreated rfaces survive in greater numbers than those that settle the vertical, sprayed walls. Likewise, flies that rest ietly on a treated wall have a greater chance for surval than those that move about continuously, since ey come in contact with less of the insecticide.

No satisfactory means of preventing the development resistance to insecticides is yet available. According to ess,[1a] it is useless to continue the search for new insecticides, since the same mechanisms that account for resistce to currently used preparations will probably be pable of producing resistance to any new compounds at are developed. He recommends an immediate return the older principles of sanitation in the management insect-borne diseases until fundamental research can ield more information on the mechanisms and prevenon of resistance. Chadwick,[1d] too, stresses the impornce of physiologic studies on the mode of action of secticides and the processes by which insects escape heir toxic effects. He feels that only by acquisition and ynthesis of this type of knowledge can we expect to revent future resistance to insecticides.

HYALURONIDASE AND VASCULAR PERMEABILITY

The ability of testicular extracts to increase the permeability of connective tissue was described independently by Hoffman and Duran-Reynals [1] and by McClean [2] in 1930. In 1939 Chain and Duthie [3] demonstrated that this "spreading factor" was due to a mucolytic enzyme, hyaluronidase. During the same year, Duran-Reynals [4] reported that testis extracts which increased tissue permeability also increased capillary permeability. At this time he suggested that the spreading factor might be responsible for both effects, but in a later review he referred to unpublished work that indicated a dissociation between the two activities.[5] Studies by other investigators have yielded conflicting results, some [6] supporting Duran-Reynals original suggestion and others [7] casting doubt on the identity of the capillary permeability factor and the spreading factor. Believing that the discrepant results were due to differences in the relative purity of the testis extracts, Benditt and his associates [8] compared the effect of highly purified preparations of hyaluronidase on vascular permeability in rats with two crude preparations of the enzyme, one of which served as the starting material for the more purified extracts. After the intravenous administration of Evans blue, rats received equivalent quantities of the various testis extracts, in terms of hyaluronidase activity. Thirty minutes later, the animals were examined for evidence of increased capillary permeability as manifested by grossly apparent edema and tissue coloration, increased hemoglobin concentration, and dye disappearance. Results indicated that the crudest preparation had vascular permeability-increasing activity while preparations of higher purity lacked this ability. This was also seen when comparable amounts in terms of hyaluronidase activity of crude and purified preparations were injected intracutaneously in rats after the intravenous administration of Evans blue. On the other hand, the purified hyaluronidase preparations retained their spreading activity as evidenced by observations on the spreading of india ink and Evans blue in the skin of rabbits and rats. Benditt and his associates are now endeavoring to purify and further characterize the vascular permeability-increasing factor shown by them to be independent of the hyaluronidase and spreading activities of testis extracts.

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[1] Panel on Resistance of Insects to Insecticides, presented before the 34th Annual Meeting of the National Malaria Society, Chicago, Nov. 16, 1951, to be published. (*a*) Hess, A. D.: Significance of Resistance to Insecticides in Vector Control Programs. (*b*) Knipling, E. F.: Present Status of Mosquito Resistance to Insecticides. (*c*) Decker, G. C., and Bruce, W. N.: House Fly Resistance to Chemicals. (*d*) Chadwick, L. E.: The Current Status of Physiological Studies on Resistance to Insecticides.

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[8] Benditt, E. P.; Schiller, C.; Mathews, M. B., and Dorfman, A.: Evidence That Hyaluronidase Is Not the Factor in Testicular Extract Causing Increased Vascular Permeability, Proc. Soc. Exper. Biol. & Med. **77**: 643, 1951.

ANTERIOR PITUITARY AND HYPOTHALAMUS

A functional relationship between the hypothalamus and the neurohypophysis has been generally accepted since Ransom and his associates[1] showed that interruption of the supraoptic hypophysial tract leads to retrograde degeneration of the cells of the supraoptic and paraventricular nuclei, atrophy of the neurohypophysis, and diabetes insipidus. In contrast, the question as to whether the hypothalamus exerts control over the anterior lobe of the pituitary is still highly controversial. While it is generally agreed that few if any of the nerve fibers of the supraoptic hypophysial tract penetrate into the anterior lobe, some investigators feel that the hypothalamus exercises control over the anterior pituitary by liberating a humoral agent that is transmitted by the hypophysial portal blood supply.[2] Others, however, have questioned this concept, postulating that loss of anterior function following destruction of the portal system may be due to cellular destruction secondary to ischemia rather than to interruption of a neurovascular link between the hypothalamus and the pituitary.[3]

An entirely different approach to the question of relationship between anterior pituitary and hypothalamus has been offered by Bodian and Maren[4] with their presentation of evidence suggesting that the anterior pituitary exerts a trophic effect on the hypothalamic nuclei. These investigators studied two groups of rats subjected to partial hypophysectomy. In the first group, approximately half of the neurohypophysis was removed, as was the intermediate lobe. The anterior lobe, however, remained almost completely intact, and, while it appeared to be completely isolated from any possible connection with the hypothalamus, its function was apparently well preserved. In the second group, the greater part of the adenohypophysis was removed together with about half of the neurohypophysis. Some three months after operation, the animals were killed and the hypothalamic nuclei were examined histologically. In the first group of animals, it was found that the means of the number of cells in the supraoptic nucleus and the magnocellular part of the paraventricular nucleus were 34% and
37% of normal, respectively, while the correspon
figures for the second group were 24% and 15%. In b
nuclei, the differences between the two groups of anim
were found to be significant. There was thus an un
pectedly severe cell loss in hypophysial nuclei follow
partial neurohypophysectomy and total adenohypop
sectomy. The authors suggest that some of the cells h
ing end-arborizations in the neural lobe may also h
proximal collaterals in the hypothalamus and that re
grade degeneration of these cells may not follow dest
tion of the end-arborizations, provided the anterior l
function is adequate. Since no nervous connections
mained between hypothalamus and pituitary in the
ond group of animals, they suggest that this postul
trophic relationship between the hypophysial hypoth
mic nuclei and the anterior pituitary involves a hum
factor. As they point out, the crucial test of the rol
anterior lobe hormonal factors would be the effec
substitution therapy in preventing the additional cell
in hypophysial nuclei that appears to follow ant
lobe ablation.

THIRD NATIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS

The Third National Conference on Physicians
Schools was held at the Moraine Hotel, Highland
Ill., Nov. 6-8, 1951. The conference was sponsore
the American Medical Association through its Bure
Health Education as the third in a series of confere
the first two of the same nature having been held in
and 1949.

State medical societies, state departments of educa
state departments of health, and national health
cies were invited by the American Medical Associ
to send delegates to the meeting. One hundred ei
three participants representing 129 agencies and or
zations came from 35 states, Hawaii, and the Distri
Columbia to attend the conference. Forty consultan
national reputation in the fields of public health, p
education and medicine served as discussion lea
Several foreign visitors on tour of the United State
tended as observers.

Five discussion groups considered specific aspec
health services for school age children. Every effort
made to include an equal representation from the va
agencies in each of these groups. Each group held
working sessions, during which specific recomme
tions on policies for school health work were formul
At general sessions, Dr. Ernest Howard, Assistant Se
tary and General Manager of the American Medical
sociation; Dr. Edwin S. Hamilton, American Medica
sociation, Board of Trustees; Clyde Parker, superint
ent, Cedar Rapids (Iowa) Public Schools; and Dr. W
Bauer, Bureau of Health Education American Me
Association, appeared as speakers or discussion lea
One general meeting was given over to reports descri
the school health activities of medical societies in sele
states. The concluding session was devoted to re
of the recorders, who summarized the recommenda
for the five discussion groups.

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[1] Fisher, C.; Ingram, W. R., and Ransom, S. W.: Diabetes Insipidus, Ann Arbor, Mich., Edwards Brothers, 1938

[2] Harris, G. W.: Neural Control of the Pituitary Gland: II. The Adenohypophysis, Brit. M. J. 2:627, 1951.

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General interest in these biennial conferences on school health, as reflected in a steadily increasing attendance from all the agencies concerned, indicates the growing significance of the meetings to both the medical profession and the other groups concerned. Evidence of improved relationships and better understanding among educators, private physicians, and public health personnel were apparent not only in the accord achieved on school health policies and principles but also in the numerous requests that the national conferences be continued at two-year intervals and that efforts be made to encourage similar meetings at state and local levels.

The sponsoring of these national conferences is only one among a number of American Medical Association activities carried on to interpret to education and public health personnel the important role of the private physician in school health. For over 40 years the American Medical Association has had a Joint Committee on Health Problems in Education with the National Education Association. Its purpose is to provide a counseling group representative of the combined medical educational viewpoint to which the schools may turn for advice on health problems. The staff of the Bureau of Health Education at the American Medical Association also participates in numerous school health activities, including attendance at meetings and institutes, participation in the committee work of many agencies and associations, the preparation of articles, radio programs, and transcriptions on school health subjects, all of which are designed to aid in the development of sound programs of school health within the framework of the private practice of medicine.

While representation at the conference from state medical societies, state departments of education, and state departments of health was fairly well equalized, and more delegates from state medical societies attended than in previous years, there is still need for greater representation of the constituent state societies. In several instances, one person was designated to represent both the state medical society and the state health department. In one case, the state health commissioner represented all three of the state agencies. Such designations demonstrated fine relationships in the states concerned and are to be commended. However, at a conference sponsored by the American Medical Association with great emphasis given to the role of the private practitioner in school health services, it is imperative that the viewpoint of the physician in private practice be fairly presented. This can be accomplished only if each state medical society will make the strongest possible effort to assure the attendance of a practicing physician as its representative at future conferences. Only then can these meetings achieve the full purpose for which they are designed. The guidance and counsel of the practicing medical profession are needed if school health programs are to develop along sound lines. The National Conferences on Physicians and Schools furnish an unequaled opportunity to provide the needed leadership.

TWELFTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

The Twelfth Annual Congress on Industrial Health will be held Friday and Saturday, Jan. 18 and 19, 1952, at the William Penn Hotel in Pittsburgh. The Council on Industrial Health of the A.M.A., the Medical Society of the State of Pennsylvania, and the Allegheny County Medical Society will act as co-sponsors. The American Academy of Occupational Medicine is meeting at the same time and in the same place, and certain sessions will be jointly conducted. On Saturday, the Council on Industrial Health has asked for and received collaboration from the Woman's Auxiliary of the American Medical Association in a full-day presentation on the important place that the American housewife occupies in industrial production as homemaker and increasingly as participating worker.

These interrelations illustrate the pervasive influence of industrial health and of medical services to industrial workers. The congress programs have repeatedly called attention to the demands industry makes on almost every medical specialty for treatment, for prevention, or for conservation. In much the same way, programs or experiments in the provision of medical care for industrial groups or union members represent movements of tremendous vitality and interest. In consequence, the subject matter under discussion at these meetings cannot be confined solely to scientific matters but tends more and more to incorporate significant developments in the socioeconomic field.

The general theme of the sessions during the coming congress will be industrial health services as a significant factor in the whole health picture of individual workers, requiring planned integration with many other community health resources—the practicing medical profession, the official and voluntary health services, and organizations dealing with housing, nutrition, and recreation. The favorable effects of an industrial health service can frequently be discounted by unhygienic habits or conditions away from work, where most time is spent.

On Jan. 17, the day preceding the congress, the Council on Industrial Health meets jointly with representatives of the state medical society committees on industrial health. These sessions have been held for a number of years and have proved helpful in the interchange of ideas and experiences. The Commission on Industrial Health of the Medical Society of the State of Pennsylvania is presenting a full-day discussion of its experiences in meeting the industrial health problems of a great industrial commonwealth. As industrial physicians and private physicians meet on common ground and recognize the necessity for mutual aid and understanding, genuine cooperation usually develops. It is hoped that every industrial health committee will have representation there.

The program of the congress may be found elsewhere in this issue of The Journal. Those who plan to attend should make hotel reservations early.

ORGANIZATION SECTION

PROCEEDINGS OF MEETING OF HOUSE OF DELEGATES

Announcer: Good evening, ladies and gentlemen. Tonight you are part of a vast nation-wide audience, participating in an historic event with some 6,800 persons here in the great Shrine Auditorium in Los Angeles. In just a few minutes you will hear the broadcast of a great, nonpartisan forum bringing together two eminent United States Senators, representing our two major political parties, in a dramatic discussion of the day's great national issues. It is a real American audience that is waiting for this colorful drama to begin—people from all walks of life, civic leaders and housewives, motion picture stars and club women. In a special section down front, along with their wives and guests, are your hosts—members of the House of Delegates of the American Medical Association, meeting in its Fifth Annual Clinical Session here in Los Angeles. On the flag-draped stage are seated the officers of the American Medical Association and members of its Board of Trustees and Coordinating Committee. Seated with them are the two distinguished United States Senators who will speak to you tonight on the critical issues now facing the nation—Republican Senator Robert A. Taft of Ohio and Democratic Senator Harry F. Byrd of Virginia. Now the Speaker of the A. M. A. House of Delegates, Dr. F. F. Borzell, of Philadelphia, has raised his gavel to call the House to order. The next voice you hear will be that of Dr. Borzell.

Dr. Borzell: The House of Delegates of the American Medical Association will come to order. This eventful meeting of the House will proceed with the important business at hand. I now call upon the President of the American Medical Association, Dr. John W. Cline of San Francisco.

Dr. Cline: Mr. Speaker, Distinguished Guests, Members of the American Medical Association, and Fellow Americans:

This is not only a significant occasion in the annals of the American Medical Association, but it is also a memorable occasion in the political and economic life of the entire nation. Tonight we shall hear from two of the most able and highly respected representatives of this country's major political parties. It is fitting that the American Medical Association should provide a forum for these distinguished Americans.

Our Association is a large, nonpartisan, professional organization, representing a wide cross section of American thinking. Our membership includes approximately an equal number of Democrats and Republicans. During the past three years our fight against socialized medicine has been conducted on a nonpartisan basis, and, because of that, we have won overwhelming, nonpartisan support from members of both parties and from all segments of the American public.

In that same spirit we gather here tonight, with a feeling of concern over the vital issues which confront our country, not as they might affect the temporary fortunes of either political party, but as they will influence the entire future of this great nation. And here tonight we soon shall have the privilege of listening to a highly significant preview of the major issues in The Great Debate of 1952.

Each of our distinguished guests is completely free to say what he thinks on both domestic and international issues, but, knowing the character of these men, I am confident each of them will make his views clear on what we believe to be the key issue in America today—freedom versus socialism.

The first of our two speakers represents the Republican Party. In fact, he often is called "Mr. Republican," which in itself is a tribute to his stature in the affairs of our nation. He is a member of one of this country's best-known and most illustrious families. His father was the 27th President of the United States, and there are many who feel the son may follow in his father's footsteps.

A lawyer by profession, he has served in public life mos the time since 1917, when, during the first world war, he bec an assistant counsel for the United States Food Administrat Later, for several years, he was first a Representative and t a Senator in the Legislature of his home state of Ohio. S 1939 he has been one of the nation's most conscientious lea in the United States Senate, and he was re-elected last yea one of the most dramatic and decisive election contests of

His political adversaries, as well as his friends, agree tha is a man of high intellectual attainments, great moral cou and political integrity. He is, today, a leading contender nomination as the Republican candidate for President of United States.

Ladies and Gentlemen, I am pleased to introduce the se Senator from Ohio—the Honorable Robert A. Taft.

Senator Taft: The American Medical Association is on the leaders in the battle of liberty against socialism. I appre the opportunity they give me tonight to discuss that issue wit people of the United States. The fundamental problem be the American people today is how best to maintain the progress they have made under liberty, and pursue their de to higher spiritual and material goals. That liberty is threat by the forces of communism from abroad. It is threatened b growing socialism and government control at home.

Liberty has been the key to our progress in the past, and the key to our progress in the future. I do not underestimat value of democracy, a government by the people, but to me peculiarly valuable because it is more likely than any other of government to assure liberty. But even under democ liberty may be destroyed if the people become arbitrary rule give arbitrary power to their representatives. Then liberty disappear while the form of democracy remains. It is the merit of the American form of government that it under to protect the liberty of minorities even against an autoc majority of the people themselves.

What do I mean by liberty?

I don't like the term "free enterprise" because it seems to only the liberty of business, which is a small element. Li means your right and the right of every man to live his ow and think his own thoughts; to have those thoughts taugh others if you can find men who believe in them. Liberty is right to spend the proceeds of your labor in such a way as want to spend them, with only a reasonable deduction for necessary costs of government. It means the liberty of local government: the right of every community to decide on its institutions, how its children shall be educated, what local ices shall be rendered and how, the form of local governm all without direction by some federal bureau in Washington right of states to run their own affairs. Liberty includes right to choose your own occupation and run your own pro sional activities or business or farm as you see fit to run it, ex for such control as may be necessary to assure a similar dom to others.

The results of liberty in the United States, where it has a longer sway than in any other nation, has been a constant provement in ideas and research and methods in every fiel intellectual activity, in science, in welfare, and in knowledg has trained people to think for themselves and cultivate reliance. American armies have been the best armies in the w not because of better discipline, but because the American sol has met each problem by thinking for himself. The Ameri system, by offering incentive and reward and liberty, has stea increased the productivity of the American workman and American farmer, and, because the more goods are produ per person the more there is to divide up per person, his sta ards of living, your standards of living. It is not so much that or I are free and enjoy being free. It is that millions of Americ are free, and the competition of their ideas causes the best i to rise to the surface and finally prevail. Our business syster

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Transactions of an evening meeting of the House of Delegates at Los Angeles, Dec. 5, 1951, broadcast over a nation-wide hook-up of the American Broadcasting Company.

such that any man can have an idea, but also can have the idea tried out without getting the approval of some government clerk.

The man who has profited most from this liberty has been the man of low income. The wages paid in this country are more than twice those paid in Great Britain, and the average American worker has twice as much of all the things that make life worth while—of good homes and home equipment, automobiles, recreation and opportunities in every field of life.

This liberty is threatened today by what is roughly called socialism. By that I mean the growing power of government in the affairs of all of you individuals, and its increased activity in many fields where it has never heretofore been involved. Socialism is a matter of degree, because some fields of activity must be and some have been always conducted by goverment, notably the post office and public schools and public roads, but for many years the proportion of government activity was more or, less static. In 1931, for instance, the federal government conducted 5 per cent of the country's activity and collected 6 per cent of your income in taxation to do it with. The state and local governments took about the same amount, or a total of 12 per cent. In 1949, before this mobilization program started, the government was already spending 10 times as much money as it spent in 1931, and had moved up to 18 per cent of all our activity plus 7 per cent more for state and local government, or more than 25 per cent of all the activity of our nation. The share of government had more than doubled. By 1953 the government will be spending 38 per cent of the total income. In Great Britain the government takes about 40 per cent.

The federal government has gone into many businesses for tself, and threatens to go into more. It has undertaken to regulate all industry and commerce and agriculture with great federal bureaus and huge subsidies. It has taken over functions which were almost exclusively local, and it threatens to take over all welfare services through a scheme known as social insurance which is not insurance, but simply more taxation to support free federal welfare services.

The American Medical Association has taken the lead in opposing this trend, and the doctors are justified in this because the key move of the socialists today is the effort to set up a federal system of socialized medicine. The government proposes to collect 6 or 7 billion dollars, mostly in payroll taxes from workmen, and set up a vast federal bureau to employ nearly all the doctors n the country to furnish free medical service to all the people, ncluding the great majority who are perfectly able to pay for it hemselves. The program, of course, would supersede all our private, state, and local activity in furnishing medical care. It would destroy the independence of the American medical profession, which is responsible for more improvements in health care and remedies for disease than any profession in the history of the world. It would bring the federal government's agents into every home more than any other service could possibly do. If the service is like most federal services, or like that of Great Britain, it would be pretty poor service.

But medicine is only the opening wedge. In Great Britain the government furnishes free service for the birth of babies, for the support of children, for burial at death, and for every misfortune of life. That is the goal of our Federal Security Administration as set forth in several of its annual reports. More government regulation also faces us in peacetime price control and wage control and rent control and agricultural control, until, as in England, the government will tell every man how he must run his business, when he can expand or not expand, what machinery he can buy, and what wages he can pay. In agriculture the proposals would soon lead, as they have in England, to the government telling every farmer what he can raise and what he can't raise, how many beef cattle he can feed, how many dairy cattle he can keep, how many hogs and chickens he can raise.

What is the purpose of this vast expansion of government activity? Supposedly it is for the welfare of the man of low and middle income, but they have all this in England, and the British workman gets wages equal to about 40 per cent of what the American workman gets, and has less than half the standard of living. He is just as good a workman. His trouble is that there has not been in England, either in business or in government, or in labor, the freedom which has existed here.

Socialism draws a beautiful blueprint, but it utterly destroys the incentive of the individual manufacturer or the individual workman. In its effort for equality, it reduces everyone to the dead level of mediocrity. New ideas are discouraged. It moves toward its goal of complete equality, but the lower income American workman is better off than the average man in a socialist country. If we took everybody's income over 10 thousand dollars a year and distributed the excess to the other workers, there would be less than 2 per cent improvement in their wages; and that wouldn't last, because no one would go on working to earn over 10 thousand dollars a year if taxation was going to take it all. But a free system has resulted in a steady increase of productivity at the rate of 3 to 4 per cent every year, reflected in constantly increasing wages and standards of living. It is the low and middle income workers who profit most from liberty.

If socialism takes 40 per cent of the income of the country, in the long run it takes from 25 to 40 per cent of your income. Socialism is expensive. It causes tremendous taxation. A lot of those taxes are passed on into the cost of goods which you buy. Even the man of lowest income today already pays 20 per cent of his income in taxes, either directly or in the increased price of every article that he buys.

You are thus deprived of the liberty of spending the money that you have earned. The government spends it for you. If the present increase goes on, the time will come when the government takes 75 per cent of your income. Then you will be like the little boy in boarding school with some spending money in your pocket, but the government, like the school master, will tell you when to get up, what to eat, what to do and when to go to bed. It is just as easy to get complete socialism by more spending as it is by government directly taking over one business after another.

This whole danger has come upon us gradually. Each project is presented as something to improve somebody's condition without consideration of its effect on his freedom and that of others. The more powerful the government becomes, the stronger its propaganda in behalf of more power. The trend cannot be stopped, unless you are willing to elect both a President and a Congress who believe that the maintenance of liberty is the first and most essential consideration for progress.

But those who dwell on the importance of liberty must recognize the proper functions of government, and their case is weakened unless they recognize that there are necessary limitations even on liberty. What we seek is liberty for all the people, not for any special group. In a great complicated industrial community, liberty cannot become laissez faire. There cannot be a negative government action in its proper field or even some increase to meet new problems.

1. Government action may be necessary to maintain a limited liberty for all in our complicated modern life. We have more red and green lights at our corners to prevent confusion in traffic and other regulations so no one can hog the road. We have a Federal Communications Commission to prevent utter confusion on the air waves in radio and television. We have a Civil Aeronautics control because we desire safety in the air. But, in all of these necessary regulations, the important thing is that they be undertaken so as to preserve the utmost liberty possible in highway and air traffic, radio, television, and the like.

2. We have found that some government regulation is necessary if we are going to retain liberty itself in business. Thus, we found that without any government regulation, we were likely to have monopoly in many fields of business. Without the Sherman Act there would have been no freedom to go into, or, stay in, business. Probably our industrial progress is due as much to protecting commercial freedom as any other factor. We see the vivid contrast in the stagnation of industry produced by the cartel system abroad. Thus, also, a free market is only possible if some protection is given against economic oppression and manipulation. We have enforced collective bargaining so that the fixing of wages may be on a truly free basis, as against the condition where an employer dealing with thousands of employees individually had an undue advantage in fixing wages. We also protect cooperatives in the farm field so that the individual farmer may not lose his economic freedom to obtain a fair price for his crops, because he is such a small unit dealing with a larger buyer or a market dominated by buyers. But in all of this legislation the important thing is to realize that the purpose is to protect liberty and a free price and wage determination for the greatest possible number of people, and not to carry out

some ideal economic control and direction of wages and prices and production conceived by a socialist planner.

3. Government certainly has the obligation in this country to relieve hardship and distress where private charity cannot do it. The advantage of our system is that it assures, roughly, a return in money measured by the work done and services performed, and thereby gives the incentive to do more and better work and more and better thinking. But under that system many must fall behind because of misfortune or their own lack of ability. Socialism claims that its advantage is in treating all equally. That is an ideal it has never attained, but it has destroyed incentive to improve. But the American people are charitable people, and they feel that this country is so productive that perhaps for the first time in history they can abolish hardship and distress from economic causes. Also our Constitution has as one of its ideals equality of opportunity, and the American people have come to feel that every child should have something like equality of opportunity no matter how poor the family or the community into which he may be born. Our state and local governments have always offered free primary and secondary school education in this country. They have undertaken to provide relief and old age assistance. They have given free medical care to those unable to pay for it. Practically every city has a general hospital for that purpose, and, while there may be gaps in service that could be closed, we do have throughout our country as good medical care available for the unfortunate as any country in the world. Our local governments, with federal aid, have undertaken to provide free housing for those unable to pay enough rent for decent private houses.

I quite agree that when you get in this field on an extensive basis you have to be careful not to go on to socialistic service for all. In fact in free schools and in the old age and survivors insurance system we have taken two steps into socialism; but I do not think that term can be applied to the charitable effort to remove extreme hardship and distress.

If we don't want charity to develop into socialism, however, there are certain definite rules to be followed. First, there must be state and local control, and the service must under no circumstance be federalized. I do not think you can maintain freedom in a country of our size in any field ruled by federal bureaus. They are too far from the people. They are so far from the people that they can't determine who is in need and who isn't, as we saw in W. P. A. days, and their policy becomes one of hand-outs for all. They are in no way responsive to public opinion. They make no allowances for the local differences of physical condition or custom or taste. The federal government may reasonably furnish advice and research. In clear cases of need, it may furnish assistance, but it should never control or regulate. For this reason, if there is any federal aid, it must be dispensed on definite statutory rules, with minimum discretion in federal officials. We have found that, if such discretion is given, it leads to an effort to withhold money until the state or locality complies with the ideas of some Washington bureaucrat has to how the service must be conducted.

State and local government services seeking federal aid must not only be confined to those in real need, but the standard of need must be a minimum one which does not make the recipient of government money better off than the man who works for a living. After all, to the extent that government supports those who are not working or not carrying their share of the burden, it can only do so by imposing more taxes on all the people who are working. It is an illusion to think that you can get this money out of corporations or the rich. If you confiscated all income over 10 thousand dollars a year per person, you would get 3 billion dollars more than today. Socialized medicine alone will cost from 6 to 10 billion minimum. The way costs are going today, it might even reach 18 or 20 billion. We cannot impose on the hard-working people of this country a burden so great to support the nonworkers that it reduces their incentive and their standards of living.

With the tremendous military spending we now face, I doubt if we should undertake any additional program, no matter how meritorious. My own feeling is that we endanger the whole economy of this country if we permit the total tax burden to run over 25 per cent of the income of all the people. Where it has reached 40 per cent, there is no longer any incentive for private development, and little doubt that socialism will conti
spiral upwards.

But whatever government project may be justified, it i
that those who enact it, and those who administer it, ha
stantly before their eyes the maintenance of the greatest p
liberty for the greatest number of people. The justificati
any government action must be clear and beyond questio
New Deal and Fair Deal rulers of this country have b
terred by no such considerations. They have been inspi
the philosophy that only the government can solve the pr
of the people. Only the government has the ability to
beautiful economic plans. Only the government or they
selves who run the government have the expert knowl
know what is good for the people. If any problem aris
have only one solution—create a new government bo
give it all the power and money it asks for to find the s
From their standpoint there is no limit to the spending
ernment. The taxpayer is inexhaustible. In fact they favo
ing for spending's sake and for the inflation they hope to p
They are determined to centralize all power in Wasl
They have a basic contempt for the people's views and th
of local communities. They are the experts, and they
to impose their false utopias on the people whether th
them or not. They ask for power unlimited by law, and
tations are imposed they do not hesitate to evade them a
Congress with contempt—at least until a major inves
is undertaken. There can be no doubt that if the prese
continues, there is no end until the nation sinks under the
of a crushing bureaucracy with the tremendous taxati
limitation of freedom which it requires.

If we can preserve liberty in all its essentials, ther
limit to the future of the American people. There are no f
to human improvement. The progress that America ha
can be an example for the entire world to follow, whil
on still further to open new opportunities for all manki
we cannot do it under the leadership of today, or un
creeping philosophy of socialism which has even affect
thinking and mine more than it should. I am always
when I consider again the wisdom of the founders of this
and astonished to see their clear analysis of the necessa
ciples of freedom, and of justice and equality incident
freedom. May our leaders be inspired by those ideals, a
progress by applying them to the new conditions of
which physically has changed, but a world where the pr
of human liberty are eternal.

ANNOUNCER: You have just heard Senator Robert
speaking before a meeting of the House of Delegates
American Medical Association in Los Angeles. In jus
minutes you will hear the second noted speaker of this
—a Democrat, Senator Harry F. Byrd. We pause now for
identification.

We are back in Los Angeles, where Dr. John W. Cline
dent of the American Medical Association, is about to in
Senator Byrd. The next voice you hear will be that of Dr

DR. CLINE: Thank you, Senator Taft, for that excelle
entation of your views on the major issues in America
The doctors of this country are deeply grateful to you,
millions of other citizens in all fields of endeavor, for you
ageous fight for American principles. And now, what w
next speaker, as a distinguished representative of the Dem
Party, have to say? Will he agree or will he differ w
Republican speaker? Will their opinions conflict, or wi
coincide on the fundamental questions confronting our co
We soon shall hear.

Our second speaker—a successful farmer, fruit grower,
paper publisher, and public servant—is a life-long De
from the traditionally Democratic state of Virginia. He
his public career with 10 years of service as a state senat
was a leader in establishing Virginia's highway system. Fo
years he was chairman of his state Democratic Committe
for another four years he was governor of the great st
Virginia. He was for 12 years the Democratic nationa
mitteeman from his home state. In 1933, he was appoin
fill an unexpired term as United States Senator, and the
cessively, in 1934, 1940, and 1946, he was elected and re-
for three full terms in the Senate.

He has gained nation-wide recognition and honor as a fightng apostle of economy, efficiency, and integrity in government. He believes, with all his heart, in the American way of life, and he repeatedly has warned that this country can be taxed into tate socialism, even more easily than it can be legislated into hat status. He has not indicated that he is a candidate for the Democratic nomination for President, nor has he campaigned or that high office. It is an index of the esteem in which he is held by the American people, however, that in a recent poll of nonmetropolitan newspaper publishers, on the question: "Whom do you believe to be best qualified for the Presidential nominaion by the Democratic Party," he ranked only two votes short f first place in this nation-wide survey.

Ladies and Gentlemen, I now have the pleasure of introducng the senior Senator from Virginia, the Honorable Harry F. Byrd.

SENATOR BYRD: It is a privilege to address the American Medical Association. I am very happy to be in California and in his great city. I have a high respect and friendship for your two senators, Knowland and Nixon. They are able, patriotic and inuential. As a Democrat to two Republican colleagues, I am glad to pay this tribute. I am told that the rules of this meeting prohibit a "partisan" approach. I submit that I can qualify as nonpartisan, and my record proves it.

Even I, a Democrat from Virginia, have been charged, in hese days of stress, with voting with the Republicans. We have many statisticians in the government at Washington. How they mploy their time, I do not know, but they get out reports every now and then, and frequently on the Senators. They say that I oted 66% with the Republicans and 34% with the Democrats. My answer to that is this: My name begins with a "B." As the oll is called alphabetically, I vote first, and the Republicans ote with me.

I can say with all sincerity that when these great legislative sues come before the Senate of the United States, the test I pply is not whether they are of Democratic origin, or of Republican origin, but whether they are best for the United States f America. I make no apologies for standing shoulder to houlder with that Republican leader, Senator Taft, when the ffort was made to repeal the Taft-Hartley Act. I believe the epeal of that Act, demanded by President Truman in order to ay a debt he had assumed in the campaign of 1948, would have been the green light to labor leaders to do what they pleased n this country—stop our trains, stop our mines, stop the very ecessities of our existence—unless we yielded to their demands.

It was not entirely the question of the language and the conents of the Taft-Hartley Act. The issue was whether certain labor leaders were to be permitted to force the repeal of a law hat had been passed overwhelmingly by the Congress of the United States. And, I am proud of the fact that I was one of ixteen Southern Democratic Senators who voted with the Republicans. This act remains on the statute books because of the willingness of the Southern Democrats to place country above party. We Southerners are sometimes criticized, but every now and then we perform a useful purpose. I think we did in that nstance.

What kind of a Democrat am I? I am a Jeffersonian Democrat of the old school who believes that simple honesty is still the very foundation of human character. I am an antisocialist Democrat, which means, in plain language, I am *not* a Truman Democrat.

The essence of freedom, under our American democracy, lies in our system of checks and balances. Within the federal government, checks and balances are provided through a three-branch system—the executive, the legislative and the judicial. Beyond this, still other checks and balances are provided in our system of state and local governments, which lie closest to individual citizens from whom all governmental power and authority is derived. Our democracy has been given vitality by our system of competitive free enterprise, which, to this point, has made us, through individual initiative, the greatest nation on earth. I stand for this system, with the absolute minimum of governmental shackles. Our four foundation stones are freedom of religion, *freedom of speech, freedom of the press and* last but not least freedom of opportunity to the individual under the competitive enterprise system.

Many are warning us as to what may come unless we change our governmental course. Some call the present trend collectivism, some call it statism, and some call it the welfare state, but let us not be technical as to the name of this new "ism." I would call it "ruinism" because these new policies of government will destroy the free enterprise system. America today stands at the crossroads. We can continue down the road to state socialism and ultimate disaster, or we can strengthen and revitalize the free enterprise system which has given to us our freedoms, and then go forward to a nobler and greater destiny. There are those who believe that socialism can be turned on and off as if it were water flowing through a spigot, and there are those who profess to believe we can have a little socialism and remain free.

For those who think "a little socialism" is a good thing, there is the British example. From what we have seen in England, we would be the most stupid nation on earth if we allowed ourselves to become further embraced by the socialism which has been creeping upon us for too many years. Socialism and free enterprise cannot live under the same roof. England thought they could, but, to her sorrow, she has found it is impossible. She socialized the coal mines, and the production of coal immediately declined. For the first time in her history, England is importing coal. She socialized the steel industry, and the production of steel immediately declined. She socialized civilian aviation, the electric supply industry, the Bank of England, the inland transportation system, the gas industry, and many other functions and enterprises essential to the welfare of her people, including socialized medicine, agriculture and the legal profession.

A friend recently sent me a copy of the London *Times*. On the first page it had a list of 150 farmers whom the government had charged were guilty of bad husbandry, because they had not obeyed the government bureau on what to plant, when to plant, and when to harvest. This notice said that unless these farmers mended their ways their farms would be confiscated. Not paid for, not condemned, but confiscated, in the free land of England! For a thousand years England has boasted that the Englishman's home is his castle, and now under socialism our friends across the sea have reached such a low estate that if a farmer does not obey the order of a bureaucrat, he is subject to the penalty of having his property confiscated.

In England there are only 70 Britons who have an income of $16,800 or more, after taxes. The rich have been liquidated. But to liquidate the middle classes, you strike at the heart and core of any country. This England has been gradually doing, as there are only 320,000 Englishmen now who have incomes of from $2,800 to $5,600 or more a year, after taxes.

In the face of these facts, are we going the road of England? Just recently, England, with momentous effort, decided to attempt the road back. By direct vote, she ousted the socialistic Labor Party and installed Winston Churchill, who I think is the greatest man of his generation, and to whom England has so often turned in her days of peril. But I fear there is little reason to expect that even under this great leadership England can return to the free enterprise system. England has repented and all of us wish her well, as she is our friend and ally.

As I see it, the welfare state, about which we have been hearing so much in recent years, is that state of twilight in which the glow of democratic freedoms is fading beyond the horizon, leaving us to be swallowed in the blackness of socialism, or worse.

In many federal programs we are chasing a mirage of easy money in the form of deficit dollars. Some of us have been duped into believing that the easy dollars handed out by the federal government are something for nothing. But, actually, these programs are adding to the public debt, undermining the will of individuals, regimenting the production of agriculture and labor, controlling the practices of business, curtailing the solvency of states, and destroying the self-determination privileges which are traditional in our local governments and domestic customs.

Make no mistake—it is socialism which lies at the end of this rainbow, and, in this rainbow, the predominating color is the red of federal deficit spending under which a whole new generation *of Americans has grown and developed. As to where* we stand today, the last time the socialist party in the United States campaigned actively in a presidential election was in 1932.

Today, virtually every plank in that 1932 socialistic platform has been enacted into federal law, and, in some cases, enlarged upon. For this reason I assume the Socialist Party as such has not been active since they have gained their objectives. Read this platform and you will see.

This is not a brash opinion of my own. Let us call to the witness stand Earl Browder, former leader of the Communist Party in America, and an authority on communism and socialism, who recently listed 22 socializing items adopted by the federal government ranging through deficit financing, price controls, government housing, and "full employment" laws. These 22 items, he said, expressed "the growth of state capitalism . . . an essential feature of the confirmation of the Marxist theory. . . . It represents the maturing of the objective prerequisites for socialism, the basic factor which makes socialism inevitable."

Mr. Browder further said: "Socialism has progressed farther in America than in Great Britain under the Labor Government, despite its nationalization of certain industries, which is a formal state not yet reached in America."

Adoption of the Truman Fair Deal program, as he has outlined it . . . and recently reaffirmed it . . . would irrevocably put us on a one-way street to state socialism. Mr. Truman says it is an insult to the intelligence of the American people to say this country is on the road to socialism. I submit that it is an insult to our intelligence to assume that we do not realize that adoption of the President's program will commit us irrevocably to a *socialistic state*, from which there can be no retreat.

If the President is against socialism, I ask him to answer these questions: Why does he continue to pressurize Congress to adopt socialized medicine? He sent Oscar Ewing, at public expense, to England to get the "low-down" on their socialistic system for propaganda use in the United States. If the President does not recognize that the British experiment in medicine is socialism, he could inform himself from the debates in England during the last election. The President calls his plan national health insurance, but it is socialized medicine just the same.

The cost of socialized medicine in America is difficult to estimate. We do things on a very grandiose scale when it comes o spending money, as you know. If the federal government ndertakes to pay the expenses of our children when they are born, guard them through their lives from illness and the things that may happen to them, and then bury them, the cost will be huge. Some of the statisticians have estimated the ultimate cost at 20 billion dollars annually, and in 50 years, that amounts to a trillion dollars.

These statisticians further said that if you take a trillion dollars and pile one dollar on top of another, it would extend 2,096,000 miles high—seven times the distance to the moon—with enough left over to pay our present national debt. I am told that is accurate, but I have not checked it.

If the President is against socialism, why is he advocating the Brannan plan, which inevitably means socialized agriculture? This plan not only would contribute in a huge way to the bankruptcy of America, but would create such chaos in the production, sale and distribution of food as to make it necessary for the government to take over these functions that must remain competitive in private hands. President Truman and Secretary Brannan are now conducting a nation-wide campaign to force the Brannan plan through Congress, notwithstanding the fact that the great farm organizations such as the American Farm Bureau Federation and the National Grange, as well as most of the farmers of this country, are bitterly opposed to this plan. They realize it will be the end of free enterprise in agriculture.

The only sincere thing Mr. Brannan has said about the plan is that he could not estimate the cost of it. Testifying before a committee of Congress, he gave this glowing picture of what the Brannan plan would do—reduce the cost of food to the consumer, pay the farmers a high profit for what they produce —but he did not fill in the gap by telling how the federal government could obtain the vast sums necessary to pay for the difference between food at low cost to the consumer and high prices to the farmer.

If President Truman is opposed to socialism, why is he advocating another extension of socialized housing?"

These three proposals alone would mean socialization o health, your food, and the roof over your head. But this i all. If the President is opposed to socialism, why is h stantly advocating an extension of the number of those receive payments from the Treasury of the United States? T there are 17 million Americans receiving regular payme rectly from the federal government, and 8 million more a the rolls of counties, cities and states. These 25 million, their families, constitute a substantial part of our popu

Socialism can be *effectively promoted* by constantly in ing those who are on the public payroll. A population o ernment dependents is a socialized population.

Among the cardinal characteristics of socialism are g ment subsidies with controls, and government dole with mentation. I am against that.

The American system, operating in the fullest freed democracy, stimulates individual initiative to the develo and production of more of what we need, in peace or wa cost we can more easily afford from the earnings of o deavor. I am for that.

The American Medical Association *needs no definition* free enterprise system from me. It is the system which, relatively short span of 160 years, has brought us from t potency of 13 un-united colonies to our present position o leadership. I do not concede that it should be scrapped for ism in welfare state clothing, which never brought gre happiness or security to any nation.

The American system has developed individual fr under constitutional democracy to the fullest measu known to man. It is the system which is always ready to the vital spark needed by the deserving to explode me into genius. It is the system which supplies the incentive fo at the bottom to rise to the top.

It is the system, which enables us with only 6 per cen world's population to outproduce the rest of the world co It is the system which produces steel, the prime requirem military defense, at a rate of three tons for every one p by the rest of the world—at a rate of *more than four* every one ton produced by Russia.

I challenge the socialists to produce a practical su for the free enterprise system's capacity to hold Russia aggression at bay. Our free enterprise system is a greate rent to Russian agression than the United Nations ever It is this system which is our first line of defense. Armies, and air forces are merely the tools through which the of this system is applied in war. With our eyes wide op we yield to the ever-increasing socialization of those fr and institutions which are vital to our democratic fre prise?

With respect to the checks and balances against federal provided in our system of state and local governments, pending in Congress now legislation under which the government would usurp local police power and state co elections.

With respect to checks and balances between the ex branch and the Congress, the Honorable Roswell P. former Under Secretary of the Treasury, now President Tax Foundation, recently testified that despite the consti mandate that federal expenditures be controlled by C "Congress does not have that kind of control today." It h chipped away insidiously over the past 20 years by giv program after give-away program which have commit federal Treasury without annual review by Congress.

From George Washington's administration to April, 1 cluding the Roosevelt administration, the federal gove took in taxes from the American people 248 *billion* dol six years and two months, from May, 1945, when Mr. T took office, to June, 1951, the federal government took f 255 billion dollars.

In plain words, in less than six and one-half years, in only three months of world War II, Mr. Truman has take the people in the form of federal taxes 7 billion dollars than was paid into the Treasury in the previous 156 y our existence as a nation. This is the record of Mr. Trum tax collector. Now let us look at the record of Mr. Trum spendthrift. From the administration of George Washing ıe beginning of World War II, federal expenditures totaled 179 illion dollars. From the end of World War II, in six years nder Mr. Truman, the federal expenditures totaled 260 billion ollars, or 81 billion dollars more than in the entire life of our ation, excepting the three and a half year period of World War I. When I first compiled these figures they appeared so fantastic ıat I had them checked from the official Treasury statements) prove their accuracy. The figures are correct.

In fiscal 1953 the Budget Bureau estimates the federal exenditures at 85 to 90 billion dollars. If so, Mr. Truman will ›end in one year—the year beginning July 1, 1952—more ıan one-half as much as all previous presidents spent up to /orld War II.

It is alarming to note that in only one year in our history have 'e exceeded this estimated 1953 fiscal year spending. In fiscal 945, at peak of World War II, we spent 98 billion. Then we 'ere financing the greatest war in history. Now we are engaged ı a police action in Korea. How much farther can we go in ıis reckless financial irresponsibility?

Now for a "Byrd's"-eye view of the federal budget. Based pon the Budget Bureau estimate of spending for fiscal 1953, ıe deficit will be from 17 to 20 billions in one year, as the income om federal taxation in this year under present tax rates will : 68 billion dollars to 70 billion dollars. In addition, our local ıd state taxation will be about 19 billion dollars.

Americans are paying nearly 30 per cent of the national in›me in taxes. Our taxes have reached the confiscatory stage, hich means that new taxes will probably result in diminishing :turns.

In the circumstances, it is natural to ponder the question: /hen does a nation become insolvent? In a system such as ours, hen and how does national insolvency manifest itself? There robably will be no milestone to mark the cross road, but it seems) me that a democracy is approaching insolvency when: (1) we re unable to pay current costs of government over a prolonged :riod with taxes short of confiscation and diminishing returns, ıd, (2) the constant cheapening of the dollar is a result of gov›nment operations. If these are the symptoms, it would appear ıat the diagnosis of our present and prospective fiscal situation unmistakably clear. The thing that is most inflated in America ›day is the federal government. Big government costs big money. ıflation is conceived and born in Washington. Only the federal ›vernment can spend in unlimited amounts. It alone determines ıe value of money and the extent of credit, because it alone is :gally empowered to do so. A federal bond is a first mortgage n all the property owned by every American citizen.

The reckless spending of the Truman administration has preipitated a federal fiscal crisis which many of us may not fully :alize, but, unless we retrench, we can anticipate a constant eterioration of our currency and credit. There is only one road) solvency, and that is to stop spending money we do not have y elimination of every nonessential disbursement. Yet, every ffort by Congress to retrench is vigorously opposed by the 'resident and his cohorts. There is, in my opinion, only one ıntouchable item in the budget of the federal government, and hat is the interest on the public debt. This we must pay as a natter of honor and to preserve the value of our bonds.

The one overshadowing characteristic of the administration ıow in Washington is fiscal weakness and irresponsibility. From his springs the demand for confiscatory taxes, stifling controls ınd centralization. If American democracy is destroyed, it will ›e the result of fiscal irresponsibility of which the present adninistration is guilty, and which, even now, is being exploited ›y political camp followers who would centralize all power and ›urse control in Washington. From these come a deadly assault ›n the free enterprise system, the creeping socialism and the scandals which Thomas Jefferson foresaw when he said, "I do verily believe that a consolidated government would become the most corrupt government on earth."

As I witness the moral deterioration of our government at Washington which has shocked and stunned the American people, once again I pay tribute to the foresight and wisdom of Thomas Jefferson, the founder of the legitimate democratic party.

I do not concede that either democracy or free enterprise, or any other American freedom has run the course of its usefulness in the world. They have been worth fighting for in the past against both economic and military challenge, and I do not concede that they were any dearer to those who have fought and won before than they are to us today. The battle lines are drawn. I am ready to fight. I hope you are. The forces of freedom in America need recruits.

What can we do? What can you do? I am frequently asked that question. I would say, first, that you must stand firmly against socialistic trends, because a little socialism inevitably means more and more socialism. There are many doors to the house of socialism. It is very easy to get in but very hard to get out. Let us not be misled into socialism by the back door. Let us judge for ourselves where these new "isms" will lead us and not be deluded by those who pay lip service to free enterprise and then advocate those things that would destroy it.

The American Medical Association has waged a clean—aboveboard—effective campaign against socialized medicine. You are fighting to preserve the great principles of our republic. You realize, as all of us should, that socializing an important segment of our daily life means that sooner or later further socialism will encompass other activities, resulting in a complete socialistic regime.

Do not be deluded into a sense of false security. Those who insist upon committing this country to socialism are ever on the alert. Today in the Senate of the United States there are few votes for socialized medicine. But when the slightest opportunity opens you will find those promoting these measures, ready to strike, like a snake in the dark. If Mr. Truman is reelected on this platform of state socialism he will assert that he has a mandate from the people to enact this full program into law.

Then I would say that you, the people of America, the voters at the polls, must demand that short of total war our federal budget must be balanced. I do not ask for "pet" federal appropriations but demand that the President and the Congress keep the federal spending within the ability of the people to pay. Let us all recognize that we cannot pyramid deficit after deficit on an existing federal debt of 260 billion dollars and survive as a democracy.

Once the American dollar goes down, we will enter an age of international darkness. The American dollar is the only thing today that is holding the world together. It is the only currency that everybody, everywhere in the world, has confidence in.

Those who, wilfully or otherwise, would destroy the American system of free enterprise, would destroy the freedoms of people everywhere. Today, we alone are bearing the standard. Without its light, freedom and progress would perish from the earth. We must not fail.

Without American solvency there would be no deterrent to communism abroad. In the existing circumstances it is no exaggeration to say that there is literally nothing on earth more important than the preservation of the fiscal integrity of the federal government of the United States and of the financial stability of the free enterprise system.

In conclusion, let me say, we should always remember that human freedom is not a gift to man; it is an achievement by man, and, as it was gained by vigilance and struggle, so it may be lost by indifference and supineness.

DR. CLINE: Thank you, Senator Byrd, for your splendid presentation in this nonpartisan discussion of the critical issues of 1952. Virginia has contributed much to the building of our America, and in this era, Senator Byrd, one of its finest contributions has been your presence in the United States Senate as a vigilant watchman and defender of American liberty.

On behalf of the American Medical Association, I wish to thank both Senator Taft, Republican, and Senator Byrd, Democrat, for taking part in this forum designed to help clarify the major public issues before the American people today.

ANNOUNCER: You have just heard Dr. John W. Cline, President of the American Medical Association, bring to a close an historic meeting of the House of Delegates of the A. M. A., a highlight of the Association's Fifth Annual Clinical Session here in Los Angeles. Dr. F. F. Borzell, Speaker of the House, also was heard on this program, which featured addresses by the Honorable Robert A. Taft, senior Senator from Ohio, and the Honorable Harry F. Byrd, senior Senator from Virginia.

TELEVISION IN HEALTH EDUCATION

The American Medical Association Clinic on Television in Health Education, held in New York, October 16, was attended by about 200 representatives of networks, advertising agencies, health and medical organizations, ethical drug houses, universities, school systems, and other groups interested in reaching a mass audience through this medium. Representatives of state medical societies from New York, Connecticut, Massachusetts, Ohio, New Jersey, and Minnesota were in attendance. The following county societies were represented: Harris County Medical Association, Houston, Texas; Medical Society of County of Kings, Brooklyn, N. Y.; Medical Society of County of New York; Nassau County Medical Society, Mineola, N. Y.; and Maricopa County Medical Society, Phoenix, Arizona.

The day was devoted to exploration of the problems involved in use of television as a device in health education of the public. The leadership furnished by experienced speakers and members of panels made it possible to furnish specific answers to many questions ranging all the way from audience measurement, through techniques, and the problems of cost.

Dr. W. W. Bauer, Director, Bureau of Health Education of the American Medical Association, supervised the planning of the Clinic and acted as general chairman of the meeting. The keynote address was presented by Dr. Louis H. Bauer, President-Elect of the American Medical Association. In emphasizing the obligation of the A. M. A. in educating the public to preventive medicine, Dr. Bauer pointed out that this responsibility rested not only on medical and allied professions, but also on radio and TV networks and stations in assisting the Association to realize their objectives in better health education.

Dr. Thomas Coffin, Supervisor of Program Research Division, National Broadcasting Company Television Network, presented the relationship between television advertising and sales results based on the Hofstra studies.

Mr. Ted Cott, general manager, WNBC-WNBT, New York, urged that public service agencies use the techniques of the commercial broadcaster trying to sell a product in setting themselves the task of selling their audience health education.

Mr. Leo Brown, Director of Public Relations, American Medical Association, stressed the need for joint responsibility among medical groups, voluntary agencies, governmental agencies, and the television industry in making authentic health information available to the public.

Roy K. Marshall, who discussed "Listeners' Reactions," declared that the public does want to be informed. "This is amply demonstrated by every discussion program which has ever been on the air."

The session continued at luncheon, when Sam Silverman, New York cab driver, reported on his six-week survey conducted among his passengers regarding their viewing of health education telecasts. The report pointed out the necessity for more and better health information, requested by many passengers. It also showed the need for helping the lay audience distinguish between commercial information and authentic health guidance.

Ralph Creer, Director, Committee on Medical Motion Pictures, A. M. A, presented kinescopes as graphic demonstration of the great potentialities of TV as a means of awakening people to the dangers and proper methods of cure and prevention in disease.

Seymour Siegel, director, WNYC, New York, led the discussion in the afternoon. Panel members included Erik Barnouw, editor, Communication Materials Center, Columbia University Press; Ralph Foster, chief, Films and Television Section, Department of Public Information, United Nations; Dr. Claude-Starr Wright, assistant professor of medicine, Department of Medicine, Ohio State University; Dr. George Wheatley, third vice-president, Health and Welfare, Metropolitan Life Insurance Company; James Macandrew, director, Board of Education Station WNYE, New York City; Gerald W. Tasker, research director, Cunningham & Walsh, Inc.; and William Vance, TV Production Staff, McCann-Erickson, Inc.

MEDICAL DEFENSE MEETING

The two-day Medical Civil Defense Conference spons by the American Medical Association, the American Hos Association, and the Association of State and Territorial Hea Officers at the Palmer House in Chicago Nov. 9-10 drew a attendance of 250, the largest crowd ever to attend a medi meeting of this kind. Dr. James C. Sargent, Milwaukee, cha man of the A. M. A. Council on National Emergency Medi Service, which initiated the meeting, said, "its success is a n inspiration to all of us in exerting a greater effort for the job ahead."

Conference delegates passed unanimously a resolution, int duced by Dr. Perrin H. Long of New York, calling for all me cal personnel to be "assigned to their proper places in the lo civil defense organization; their assignment to be the respo bility of the legally authorized civil defense officers accord to the laws in the various states, and only after full consu tion with the local, state and/or national professional hea organizations which exist in the various fields." The resolut said further that "the professional and tactical organization training of individuals and units will be the prime responsib of legally authorized civil defense officers, again, only after consultation with local, state and/or national professional he organizations in these fields."

There were many speakers on the two-day program, inc ing Millard F. Caldwell, administrator, Federal Civil Def Administration, and Dr. William L. Wilson, assistant adm trator, Health and Welfare, Federal Civil Defense Admini tion. C. Joseph Stetler, Secretary of the Council, said that point that stood out after the many speeches was that of absolute necessity of coordination between health and wel planning in developing a well-rounded program of disaster re Dr. Norvin C. Kiefer, director of Health and Special Weap Defense Division, said afterward that he hoped the confer would prove an inspiration for genuine nationwide coopera between the health officer, the hospital, and the medical allied health personnel—of all categories—in the civil def movement. He stressed one other point: that the necessity mobile support, to be fully met, must depend upon health sonnel in the remote areas, not in the target areas.

An afternoon panel gave an excellent close-up view of Federal Civil Defense Administration's operations in the va fields. "If there was one central theme," Dr. Sargent said "it seemed to be that now since the preliminary phases of ning, financing and procedure have passed, it is high tim make a positive and concerted effort at recruitment of the dreds of thousands of American citizens necessary to carry *this gigantic program*."

RESIGNATION OF DR. KELLOGG SPEED

The Committee on Scientific Exhibit of the Board of Tru has accepted the resignation of Dr. Kellogg Speed, Chicag Chairman of the Special Exhibit Committee on Fractures, e tive at the close of the Los Angeles Session. Dr. Speed has chairman of this Committee for 25 years, first being appo in 1926. In addition to the demonstrations on the treatme fractures at the Annual and Clinical Sessions of the Amer Medical Association, he has been largely responsible for "Primer on Fractures," now in its sixth edition.

Dr. Frederick A. Jostes, St. Louis, has been appointed C man to succeed Dr. Speed. The other members of the Com tee are Dr. Gordon M. Morrison, Boston; Dr. Ralph Carothers, Cincinnati, newly appointed. Dr. Kellogg Spee comes emeritus member.

PRESIDENT-ELECT VISITS AIR BASE

Dr. Louis H. Bauer, President-Elect of the American M cal Association and consultant to the Air Force Surgeon eral, visited Langley Air Force Base last month to o first-hand observation of local problems in aviation med prior to the consultants conference held by the Surgeon Gen

With the 47th Medical Group acting as host, Dr. Bauer to base headquarters, flew aloft in a B-45, and checked other m cal aspects of Air Force work. Dr. Bauer was the first mandant of the School of Aviation Medicine and is editor o *Journal of Aviation Medicine*.

TWELFTH ANNUAL CONGRESS ON NDUSTRIAL HEALTH

Hotel William Penn, Pittsburgh

Jan. 18-19, 1952

PRELIMINARY PROGRAM

Sponsored by
The Council on Industrial Health of the A. M. A.
Medical Society of the State of Pennsylvania
Allegheny County Medical Society

FRIDAY MORNING, 9:00—FORT DUQUESNE ROOM

REGISTRATION

FRIDAY MORNING, 10:00—URBAN ROOM

OPENING SESSION

ANTHONY J. LANZA, M.D., *Presiding*
Chairman, Council on Industrial Health;
Chairman, Institute of Industrial Medicine, New York University-Bellevue Medical Center, New York

o be Announced

o be Announced

ndustrial Health is Industrial Strength
HOWARD A. RUSK, M.D., D.Sc. (Hon.); Professor and Chairman, Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center; Associate Editor, The New York Times; Chairman, Health Resources Advisory Committee, Office of Defense Mobilization, New York.

ANEL ON PERIODIC HEALTH EXAMINATIONS

FRANK M. JONES, M.D., *Presiding*
President, American Academy of Occupational Medicine, Montreal

articipants:
FREDERICK H. SHILLITO, M.D., Director, Atlantic Division, Pan American World Airways System, New York
LEMUEL C. MCGEE, M.D., Hercules Powder Company, Inc., Wilmington, Delaware
BENJAMIN V. WHITE, M.D., Hartford, Connecticut

FRIDAY AFTERNOON, 2:00—URBAN ROOM

JAMES H. STERNER, M.D., *Presiding*
Medical Director, Eastman Kodak Company
Rochester, New York

linical Pulmonary Physiology
HURLEY L. MOTLEY, M.D., Director, Cardio-Respiratory Laboratory, Jefferson Medical College Hospital, Philadelphia

Evaluating the Effect of Industrial Noise on Man
HORACE O. PARRACK, Major, USAF; Chief, Bio Acoustic Unit, Wright Air Development Center, Wright-Patterson Air Force Base, Dayton, Ohio

Eye Health Evaluation and Maintenance
ARTHUR K. PETERSON, M.D., Medical Director, The Lakeside Press, R. R. Donnelley & Sons Company, Chicago
A. D. RUEDEMANN, M.D., Detroit

FRIDAY EVENING, 6:30—BALLROOM

ANNUAL DINNER

ANTHONY J. LANZA, M.D., *Presiding*

Health for the American Worker—A Joint Responsibility
Speakers to be Announced.

SATURDAY MORNING, 9:30—URBAN ROOM

OCCUPATION HOUSEWIFE

Jointly sponsored by the Council on Industrial Health and the Woman's Auxiliary, American Medical Association

MELVIN N. NEWQUIST, M.D., *Presiding*
Medical Director, The Texas Company, New York

Keynote Presentation
LILLIAN M. GILBRETH, Dr. Eng., Consulting Engineer, Montclair, New Jersey

Women in Our National Work Force
FRIEDA S. MILLER, Director, Women's Bureau, U. S. Department of Labor, Washington, D. C.

What Happens When the Homemaker Goes to Work?
ELIZABETH SWEENEY HERBERT, Household Equipment Editor, McCall's Magazine, New York

Housekeeping—A Dangerous Trade?
THOMAS FANSLER, Director, Home Safety Division, National Safety Council, Chicago

Energy Saving Procedures for the Disabled Housewife
The Disabled Cardiac Person
JOHN G. BIELAWSKI, M.D., Executive Director, Michigan Heart Association, Detroit

The Orthopedically Disabled Person
EDITH L. KRISTELLER, M.D., Director, Disabled Homemakers Research Project, New York University-Bellevue Medical Center, New York

SATURDAY NOON, 12:00—BALLROOM

LUNCHEON

Sponsored by the American Association of Industrial Nurses (Pittsburgh Chapter)

SATURDAY AFTERNOON, 2:00—URBAN ROOM

OCCUPATION HOUSEWIFE
(CONTINUED)

MRS. HAROLD F. WAHLQUIST, *Presiding*
President, Woman's Auxiliary to the American Medical Association, Minneapolis

Further Discussion of the Disabled Housewife
JULIA S. JUDSON, M.S., P.T.A., Coordinator, Disabled Homemakers Research Project, New York University-Bellevue Medical Center, New York

Survey for the Evaluation of Clinical Instruction on Work Simplification for Cardiac Patients
MARGARET AUSTIN, M.D., Chicago Heart Association; Chief Cardiologist, Women and Children's Hospital, Chicago

The Home Economist Adapts Work Simplification Course to Meet the Needs of the Cardiac Homemaker or Housewife
FRANCES G. SANDERSON, Professor of Home Economics, Chairman of Home Economics Department, Wayne University, Detroit

Question and Answer Period for Audience Participation

SATURDAY AFTERNOON, 2:00

HUMAN RELATIONS AND MENTAL HEALTH IN INDUSTRY

Discussion Program to be Announced.

Speakers to be Announced.

MEDICAL NEWS

ARIZONA

Service Award for Southwestern Physician.—Dr. W. Warner Watkins of Phoenix was honored at the annual banquet of the Southwestern Medical Association in October with a citation for 30 years of service. Dr. Watkins, who was editor of *Southwestern Medicine* for 12 years, served as secretary-treasurer of the association for 10 years and as president in 1920. He was presented a lifetime membership in the association.

CALIFORNIA

Chemical Society Anniversary Awards.—Professor Linus C. Pauling of the California Institute of Technology and Professor Choh H. Li of the University of California received two new medal awards inaugurated by the American Chemical Society's California Section in observance of the section's golden anniversary. Presentation of the medals was made November 27 at a dinner in Berkeley. Professor Pauling, a former president of the American Chemical Society, was awarded the Gilbert Newton Lewis Medal for his major contributions to chemical theory. He is internationally known for his research on the structure of crystals and molecules and on the nature of the chemical bonds that hold atoms together. The medal honors a University of California professor who was an outstanding authority on chemical thermodynamics. Not given on an annual basis, the medal will be presented only as the occasion warrants and only to North Americans. Professor Li received the California Section Medal for isolating corticotropin (ACTH) in 1942 and subsequent work on the hormone. He is presently professor in the department of biochemistry. This award will be given annually to a scientist under 40 years of age who has made a major contribution to chemistry while living in one of the 11 western states.

CONNECTICUT

le Receives Blake Portrait.—A portrait of Dr. Francis G. ake, Sterling Professor of Medicine and former dean of the ale University School of Medicine, New Haven, was formally presented to Yale University November 25 at a brief ceremony in the club room of the Sterling Hall of Medicine. The portrait was a gift of over 400 former colleagues, students, friends, and members of the medical school staff. This year Dr. Blake is retiring after completion of his 30th year of service at Yale to serve with the medical research and development program for the United States armed forces in Washington, D. C. An authority on chemotherapy, Dr. Blake did research on many epidemic diseases, including pneumonia, measles, scarlet fever, and typhus. In 1921 he joined Yale University School of Medicine faculty as a professor of medicine and one of the youngest men ever appointed to a full professorship at Yale. In 1940 he became dean of the school of medicine, a position he held for seven years. During this period he held a number of important government positions and served as president of the Army Epidemiological Board.

ILLINOIS

Grants-in-Aid of Cancer Research.—The American Cancer Society, Illinois Division, Inc., has received $20,000 from the estate of Ernest Kruetgen and $5,000 from the estate of Bessie Kultgen. In each instance the will stipulated that the money be spent only for cancer research. The society will therefore accept applications for grants-in-aid to support responsible cancer research projects to be considered by a special committee. Applications should contain full details concerning the nature of the project and what is hoped in the way of accomplishment. Sufficient information should be supplied to assure the committee that personnel concerned in the research are qualifi
that adequate facilities are available. Applications will b
cepted until January 1, 1952, and should be addressed to
John A. Rogers, Executive Director, American Cancer Soc
Illinois Division, Inc., 139 N. Clark St., Chicago 2.

Chicago

Testimonial Dinner for Dr. Hess.—Friends and former stu
of Dr. Julius H. Hess, professor emeritus, department of p
trics of the Universtiy of Illinois College of Medicine, will
a testimonial dinner in his honor at 6:30 p. m., January 2
the Congress Hotel. Those wishing to attend should se
check for $10, made payable to the Dr. Julius H. Hess Ba
Fund, to Dr. Samuel J. Hoffman, 629 South Wood St.

Award for Plan to Improve Medical Care.—Offer of an a
of $1,000 to the resident of Cook County submitting the
plan for improving medical care was announced December
the Chicago Medical Society. Entries will not be judge
literary quality but on excellence of ideas. The rules gover
the essay contest are as follows: 1. The subject of the essay
be, in general, the improvement of medical care within
framework of the free enterprise system. Plans involving
form of complete government control of our medical care
tem will not be considered. 2. Essays shall be limited to
words. They shall be typewritten on only one side of the
double-spaced, and the author's name and address must a
at the upper right hand corner of the first page. 3. All e
must be received in duplicate not later than March 1, 19
the office of the Chicago Medical Society, 86 East Ran
St., Chicago 4. All residents of Cook County are eligib
compete, except doctors of medicine, their office employees
members of their families, and employees of the Ame
Medical Association, Illinois State Medical Society, or Ch
Medical Society. 5. Five essays will be selected for final
sideration. Each of the finalists will be requested to com
a questionnaire form to establish his eligibility and compl
with the contest rules. The winner will be notified about A

Lectures in Biochemistry.—A special lecture series on "Se
Topics in Biochemistry" will be offered Wednesday eve
during the winter quarter at the Downtown Center of the
versity of Chicago, 19 S. LaSalle St., beginning Januar
Lectures will cover three areas, "Social Implications of
chemistry," "New Techniques in Biochemical Research,"
"The Role of Biochemistry in Related Fields," and ar
signed for the general student rather than the advanced
chemist. A series ticket is $9 and single admissions are $
The schedule of lectures is as follows:

January 23, lecturer to be announced, Effect of Chemical Progr
the Practice of Medicine
January 30, Thomas B. Coolidge, associate professor of biochen
Nutrition and Population.
February 6, Henry R. Kraybill, Ph.D., director of research and
tion, American Meat Institute Foundation, Contributions of
cultural Biochemistry.
February 13, Merlin S. Bergdoll, Ph.D., assistant professor of
chemistry, Chromatography.
February 20, Bernard S. Schweigert, Ph.D., research associate i
chemistry, Microbiological Assay.
February 27, H. G. Williams-Ashman, fellow in surgery, Bioche
of Cancer.
March 5, Leon O. Jacobson, associate professor of medicine, Rad
Injury.
March 12, James W. Moulder, Ph.D., assistant professor of bioch
try, Biochemistry in Microbiology.

KENTUCKY

State Association Annual Awards.—The Kentucky State
cal Association at its annual meeting in October presente
three annual awards. Dr. Carl Norfleet, Somerset, who rec
the Distinguished Service Award, has been a member of
Pulaski County Board of Health for over 40 years and
served the association as councilor. He was a delegate t
house and has been a member of the Medical Economics

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

iittee for more than 10 years. Dr. Joshua B. Lukins was given he E. M. Howard Award for outstanding service in behalf of rganized medicine. He has been the association's delegate to ne American Medical Association since 1941 and is a member f the American Medical Association Judicial Council. He was resident of the Kentucky association in 1935-36 and has been hairman of the Medico-Legal Committee for 27 years. The . Watts Stovall General Practitioner Award was presented to)r. John E. Kincheloe, Hardinsburg, who has practiced there nce 1899. The award was accepted by his son since Dr. incheloe was ill.

IASSACHUSETTS

lultiple Sclerosis Research Grant.—A grant of $39,744 has een made by the National Multiple Sclerosis Society to the larvard Medical School and Massachusetts General Hospital, oston, for studies in multiple sclerosis under the supervision f Dr. Raymond D. Adams, chief of the neurological service f the hospital. A research clinic will be established at Massahusetts General Hospital for the diagnosis, treatment, and udy of multiple sclerosis patients. Patients in the Boston area ill be considered for admission to this clinic.

IINNESOTA

ersonals.—Dr. Charles H. Slocumb, associate professor of inrnal medicine at the Mayo Foundation, Rochester, was given ie Triennial Gold Medal Award by the West London Medicohirurgical Society in London, England, on October 5. This ward is conferred on a younger scientist for outstanding work.

ancer Lecture.—Prof. C. H. Andrewes, National Institute for ledical Research, University of Leeds, London, England, will ive the annual George Chase Christian Cancer Lecture at the niversity of Minnesota Medical School, Minneapolis, on Janury 15. His subject will be "Current Thoughts on Viruses and ancer."

ociety News.—Dr. Charles G. Uhley of Crookston was elected resident of the Minnesota Division of the American Cancer ociety at the recent annual meeting of the board. Stanley awks of Minneapolis, John J. Bittner, Ph.D., head of the epartment of cancer biology at the University of Minnesota, nd Dr. David P. Anderson of Austin were elected viceresidents.

IISSOURI

ersonal.—Dr. Walter L. Brandon of Poplar Bluff has been lected president of the State Board of Medical Examiners. Dr. Villiam J. Shaw of Fayette is secretary-treasurer.

leeting on Surgery Honors Dr. Graham.—Approximately 250 urgeons throughout the country came to St. Louis to honor)r. Evarts A. Graham, professor emeritus of surgery at the Vashington University School of Medicine, St. Louis, November 29-30. Dr. Graham retired as head of the department and Bixby Professor of Surgery last July 1. At a dinner Friday vening in the Jefferson Hotel announcement was made of the stablishment of the Evarts Ambrose Graham Award, which is o be given periodically to the surgeon who has made the most outstanding contribution internationally to surgery. The fund for the award, a medal, was contributed by former students of Dr. Graham. The principal speaker was Dr. Edward Delos Churchill, professor of surgery at Harvard Medical School and surgeon-in-chief of the Massachusetts General Hospital, Boston, who discussed Dr. Graham's career. Scientific sessions were held Thursday and Friday in the medical school auditorium. Among former students who presented papers were Dr. Brian B. Blades, George Washington University, Washington, D. C.; Dr. Warren Cole, University of Illinois, Chicago; Dr. Robert M. Moore, University of Texas, Galveston, and Dr. Nathan A. Womack, University of North Carolina, Chapel Hill. Dr. Graham has been a member of the medical school faculty for 32 years. He is considered a "surgical pioneer" and is well known for his work on the gallbladder and surgical treatment of cancer of the lung.

Hospital Physicians Receive Medals.—Forty-six physicians who had been in voluntary attendance at least 20 years at Kansas City General Hospital as teachers and workers received gold medals November 6 at the first medical staff meeting of the season. The medals were inscribed "in recognition of professional services rendered to Kansas City's less fortunate through the Kansas City General Hospital." Dr. Charles C. Conover, who was a student surgeon at the hospital in 1893 and a staff member from 1896 to 1934, had been associated with the hospital for the longest period. Others have been in practice in Kansas City from 30 to 50 years and still continue their advisory work at the hospital. The following physicians were honored: Theodore H. Aschmann, Jess V. Bell, Peter T. Bohan, Harvey P. Boughnou, Clarence S. Capell, Charles C. Conover, Charles C. Dennie, Frank D. Dickson, O. Jason Dixon, B. Landis Elliott, James R. Elliott, Ambrose E. Eubank, Eugene H. Ferguson, Paul A. Gempel, Edward T. Gibson (deceased), Max Goldman, Buford G. Hamilton, Jefferson City, Mo., H. Lewis Hess, Walter F. Holbrook, George H. Hoxie, Berkeley, Calif., Robert D. Irland, William R. Jackson, Albert N. Lemoine Sr., Paul Lux, Herman S. Major, James G. Montgomery, Benjamin L. Myers, Andrew W. McAlester Jr., George F. Pendleton, Bertram A. Poorman, George W. Robinson Sr., Robert M. Schauffler, Edwin Henry Schorer, David L. Shumate, Morris B. Simpson, J. Milton Singleton, Samuel H. Snider, Frank R. Teachenor, Druery R. Thorn, Harrison C. Trippe, Herbert Tuthill, Ross H. Underwood, Herbert S. Valentine, Damon O. Walthall, Edwin C. White and R. Lee Hoffman.

NEW HAMPSHIRE

Medical Society State Defense Meeting.—State and county defense committees were invited by the New Hampshire Medical Society's Committee on Emergency Medical Service to attend a symposium on national defense December 9 in Concord. Dr. Daniel J. Sullivan, Nashua, head of the society's committee, planned the symposium as a follow-up meeting for the National Conference on Civil Defense, which he attended in Chicago on November 9-10. Also invited to the meeting were representatives of the dental profession, hospitals, and nurses.

NEW YORK

Masonic Grants to Medical Schools.—The Masonic Foundation for Medical Research and Human Welfare, representing the New York Masons, presented special funds totaling $192,923.55 for medical research at six state medical schools. Recipients of the grants made October 24 are the University of Rochester, $26,657.85; State University of New York, Syracuse, $24,984.72; New York University, $72,623.83; Columbia University College of Physicians and Surgeons, $25,379.46; University of Buffalo, $19,650.60, and Irvington House for Cardiac Children, Irvington-on-Hudson, $23,618.09.

New York City

Plans for Institute of Administrative Medicine.—Dr. Willard C. Rappleye, dean of Columbia University's faculty of medicine, November 18 announced plans for setting up an Institute of Administrative Medicine, within the framework of the School of Public Health. It will combine training of graduate medical students for administrative leadership with research to determine the best methods for delivering maximum medical care at reasonable cost. An advanced degree in administrative medicine will be offered. In Dr. Rappleye's opinion, the end-result of this kind of training program will be the return of the administration of health to specially trained members of the medical profession. The administrator trained in the institute will be qualified to deal with the health and allied problems which are arising in every community, including (1) the increase in the average age of the population, which will necessitate increasing attention to facilities for the treatment of persons with chronic diseases; (2) increasing specialization in the medical profession, and the need for teamwork represented by group practice in many aspects of medical service; (3) the need for modern diagnostic laboratory facilities and personnel in many communities; (4) the rapid growth of hospital and medical insurance plans;

(5) the need for strengthening the ambulatory services of hospitals; (6) the need for developing home medical services, and (7) the continued development of programs of preventive medicine. Representatives of various voluntary and municipal hospitals, voluntary agencies, public health, medical, and other facilities in the New York area will be members of the coordinating group.

NORTH CAROLINA

Teaching with Motion Pictures.—The Duke University School of Medicine has produced more than 20,000 feet of teaching film and more than 6,000 colored slides under a program supported in part by a grant from the National Foundation for Infantile Paralysis. The program is under the direction of Dr. Joseph S. Markee, a professor of anatomy, who has worked with medical visual aids for 20 years. Students in anatomy get a movie preview of each quarter's work before classes begin. The full-length film is then divided into 20-minute short subjects, and students take advantage of continuous movie showings every afternoon to view the appropriate short subject. Two years later, when students take their examinations, they come back for a review-and-refresher showing and see the full length films again. Dr. Markee is a member of the motion picture committee of the Association of American Medical Colleges and a member of the Motion Picture Association of the American Academy of Anatomists.

PENNSYLVANIA

Health Poster Exhibit.—An exhibition of foreign health posters gathered by the Medical Society of the State of Pennsylvania will be open to the public through January 13 in the Reading Public Museum and Art Gallery. These posters on various health topics from fifty countries have been shown in the Pennsylvania State Museum in Harrisburg, the Cleveland Health Museum, and the fine arts galleries of the University of Pittsburgh. They have been on view in Reading since December 2.

Certificates for Postgraduate Instruction.—Certificates are being presented to 107 Pennsylvania physicians who have attended for ree years the courses of instruction presented under the aus- of the Commission on Graduate Education of the Medical ety of the State of Pennsylvania. The certificates, signed by deans of the seven medical schools of Pennsylvania, state that the recipients have attended the courses for approximately 220 hours, which have included instruction in medicine, surgery, pediatrics, and obstetrics. These refresher courses are presented five days in the fall and five days in the spring in 10 teaching centers throughout Pennsylvania. A faculty of 175 instructors from the medical schools of Philadelphia and Pittsburgh will teach in the centers throughout the year.

Philadelphia

Shmookler Lecture.—The Henry B. Shmookler Memorial Lecture of Mount Sinai Hospital will be given at the nurses' home auditorium at 9 p. m., December 27. Dr. John W. Gofman, associate professor of medical physics at the Donner Laboratory of Medical Physics, University of California, Berkeley, will speak on "Recent Concepts of the Pathogenesis of Atherosclerotic Cardiovascular Disease."

Society News.—The November meeting of the Pennsylvania Academy of Physical Medicine and Rehabilitation was held on November 15 in Philadelphia. The scientific program included the following:

J. Eugene Ruben, Stellate Ganglion Block in the Treatment of Apoplexy and Vasospastic Conditions.
Scott Whitehouse, Intravenous Tetracaine in the Treatment of Pain of Arthritis.
Richard T. Smith and Irwin F. Hermann, Rehabilitation in Rheumatic Diseases.

Neurology Building Addition.—On October 30 the Charles K. Mills Neurology Building was dedicated at Philadelphia General Hospital. This 750-bed addition was built at a cost of 8 million dollars and contains a complete division of physical medicine and rehabilitation. At the opening exercises addresses were delivered by Hon. Bernard Samuel, mayor, City of Philadelphia; William C. Brown, state secretary of welfare; Drs. Rufus S. Reeves, director of public health; Pascal F. Lucchesi, r director, Philadelphia General Hospital, and S. Dale president of the medical board of the hospital. The guest was Dr. Henry Alsop Riley, New York Neurological I College of Physicians and Surgeons, Columbia Universit

TEXAS

Personals.—Dr. Eugen Kahn, New Haven, Conn., h appointed professor of psychiatry at Baylor University of Medicine, Houston. He is a former Sterling Clini fessor of Psychiatry at Yale University School of Medic

Course in Surgery.—A refresher course on trauma emergency surgery will be offered at the University o Medical Branch, Galveston, January 7-11. This cour signed particularly for general practitioners and is to sored jointly by the Medical Branch and the Texas State Association.

VIRGINIA

Personal.—Dr. James Robert Cash, since 1931 Wal Professor of Pathology at the University of Virginia De of Medicine, Charlottesville, was honored on his 20th sary, December 1, by colleagues and friends at a ba Keswick Country Club, Charlottesville.

New Hospitals.—The Louise Obici Hospital was ded Suffolk last fall. This 100-bed hospital is a memorial Louise Obici, wife of the founder of the Planters Chocolate Company of that city. The Shenandoah Memorial Hospital was also dedicated in September. pital is located at Woodstock and cost $800,000.

WEST VIRGINIA

Health Education Director Goes to Panama.—Mr. W Rost, director of the bureau of public health educati state department of health, has resigned to accept an ment on the field staff of the Institute of Inter-America He will serve as health education consultant to the M Health at Panama City, Panama Canal Zone. The ac the new program include the construction and ope health centers, the conduct of a campaign against epid endemic diseases, the dissemination of health informa the training of local health personnel in modern pub practices. The program provides that the host count the major portion of the personnel and funds, with t States Government furnishing technical assistance. jamin M. Drake, deputy director of health, will serve director of the bureau of public health education un cessor to Mr. Rost is appointed.

GENERAL

Measles.—The incidence of measles increased the w ing November 24 as compared with the previous wee the same week last year, according to the U. S. Publi Service. Approximately three-fourths of the cases for rent week were reported in the northeastern states. seasonal low week, about September 1, a total of 20, have been reported, as compared with 12,700 for the sa of 1950.

Award in Industrial Ophthalmology.—At the meetin American Academy of Ophthalmology and Otolaryn Chicago, October 14-18, the annual award from the C on Industrial Ophthalmology was presented to Captain W. Shilling, MC, USN, Deputy for Bio Sciences, Office Research and director Research Division, Bureau of and Surgery, Washington, D. C., "in recognition of ing leadership and service to scientific research."

Kiwanis Plans Study of Spastic Paralysis.—Funds for a five-year research program on spastic paralysis are bei by the Illinois and Eastern Iowa district of Kiwanis tional through voluntary contributions from the mem cording to Harry S. Himmel of Chicago, chairman of trict's spastic child committee. The money will be naintain a specially trained physician at one of the medical chools in the Chicago area to devote his full time and energy to esearch into the cause, prevention, and treatment of spastic aralysis. When the entire sum is pledged, the district will set p a Foundation for Research for Spastic Paralysis to carry out he program.

nternational Prize on Trachoma.—The International League gainst Trachoma will give an international prize of 100,000 rench francs in 1952 for the best work on etiology, pathogeny, athologic anatomy, or physiology of the trachomatous eye. he award was created by Mrs. Cuenod and Roger Nataf of unis. Five copies of the work accompanied by an abstract of our typewritten pages in French, English, Italian, and Spanish, ust be sent to the Secretary General, Dr. Jean Sedan, 94, rue ylvabelle, Marseilles, before March 1, 1952. The winning work ill be published in various languages in the *Revue Internaonale du Trachome*. The prize will be awarded at the general eeting of the Congress of the Societe Francaise d'Ophthalologie in 1952.

ulbright Scholars in United States.—Lists of visiting scholars om abroad receiving travel grants in the Fulbright program r 1951-52 are now available from the Committee on International Exchange of Persons, Conference Board of Associated esearch Councils, 2101 Constitution Avenue, N. W., Washingon 25, D. C. Many of the scholars at assigned institutions would elcome invitations to visit other institutions, provided the exense of travel was covered by the university or college inviting em. It is suggested that such invitations include clear informaon as to the expense involved because of the limited dollar sources of most of the visiting scholars. A total of 69 scholars medicine are in the United States for periods varying from ree to nine months.

rants for Research on Blindness.—The National Society for e Prevention of Blindness has made grants totaling $8,942 r research on eye diseases and defects that can lead to blindess. At present only a few hundred thousand dollars is spent nnually in the United States for research on blindness. In conast, the American public last year spent 125 million dollars r pensions and care of those already blind. Grants went to e Massachusetts Eye and Ear Infirmary in Boston, Western eserve University in Cleveland, and Washington University chool of Medicine and McMillan Eye Clinic in St. Louis. A ortion of the funds in the Western Reserve and Washington niversity grants came from a New Jersey organization, New yes for the Needy, which is cooperating in the national research rogram.

ociety Elections.—At the annual meeting in Vancouver, B. C., November the North Pacific Surgical Association elected as ajor officers for 1952 Dr. Richard E. Ahlquist of Spokane, Vash., president; Dr. Thomas M. Jones of Victoria, B. C., rst vice-president, and Dr. John A. Duncan of Seattle, secreary-treasurer.——The board of directors of the Mississippi alley Medical Society, at its annual meeting in Quincy, Ill., November 18, elected the following officers for 1952: Dr. John I. Marker, Davenport, Iowa, president-elect, and Dr. Harold wanberg, Quincy, Ill., secretary-treasurer. Dr. Daniel L. Sexton f St. Louis is the 1952 president. The annual meeting will be eld at the Jefferson Hotel in St. Louis, October 1-3, 1952. The nnual meeting of the American Medical Writers' Association vill be held at the same hotel on October 1.——The American College of Surgeons at its annual meeting in San Francisco November 8 installed Dr. Alton Ochsner, New Orleans, as president, and chose Dr. Harold L. Foss, Danville, Pa., as president-elect. The secretary and the treasurer, appointed officers, are, respectively, Drs. Michael Mason and Warren H. Cole, Chicago. The next annual meeting will be held at the Waldorf-Astoria in New York September 22-26.

Fellowships in Cancer Research.—The American Cancer Society is offering a limited number of clinical fellowships and traineeships for postgraduate training in medicine, emphasizing diagnosis and treatment of cancer. Traineeships carry a maximum stipend of $3,600, and the recipient must be not over 40 years of age. Two types of training may be provided: 1. General training in diagnosis and treatment of cancer and other malignant diseases, with instruction and practice in diagnosis, surgery, radiation therapy, medicine, and pathology without reference to the usual specialty. 2. Specific training in a restricted discipline or specialty, i. e., surgery or surgical specialties, pathology, radiology, and internal medicine, with instruction and practice which places major emphasis on cancer and other malignant diseases within the purview of the specialty selected. Fellowships and traineeships available on and after July 1, 1952, will be awarded for one year and are renewable for three years. Fellowships and traineeships are awarded to institutions only upon application by deans, executive officers, or department heads. Individuals desiring such fellowships or traineeships should consult the appropriate authority in the institution of their choice. Applications for the year 1952-53 must be submitted prior to Jan. 1, 1952. Further information may be obtained from the American Cancer Society, Professional Education Section, 47 Beaver St., New York 4.

Rehabilitation Services Needed.—To implement the work of physicians in rehabilitating crippled children, 30,000 occupational therapists, 26,000 physical therapists, 20,000 speech and hearing therapists, and 80,000 special teachers will be needed in the next five years to give adequate treatment, training, and education to handicapped children and adults, according to the National Society for Crippled Children and Adults, Chicago. Mr. Linck, executive director, said that a nationwide recruitment and training program for these fields is imperative. The estimate is based on results of the society's nation-wide survey of actual needs. Requests for physical therapists head the list of the National Society's Personnel Registry and Employment Service, most of them coming from physicians who have no facilities for physical therapy in their communities. The objective of these workers would be full utilization of the capabilities of millions of crippled children and adults whose skills are a great resource for industry and the professions. The national society has established scholarships and fellowship programs in cooperation with state societies and two national women's fraternities. Nearly 700 professional scholarships have been awarded as a result of this program. To aid in the recruitment of workers, the national society also maintains a free national Personnel Registry and Employment Service which cooperates with other professional organizations and which last year handled 2,412 referrals and 875 professional placements in critical jobs.

Merck Fellowships in Natural Sciences.—The National Research Council, Washington, D. C., has announced the availability of Merck Postdoctoral Fellowships in the Natural Sciences for 1952-53. All fields of chemistry and biology, including the preclinical medical sciences, are open to applicants. The fellowships carry stipends ranging from $3,000 to $5,000 plus travel expenses, and are offered annually to citizens of the United States with training in chemistry or biology equivalent to that represented by a Ph.D. degree. The program, supported by Merck & Co., Inc., manufacturing chemists of Rahway, N. J., is administered by the National Research Council, with which applications must be filed before Jan. 15, 1952. The purpose of the Merck Fellowships is to make possible special training, education, and development of young men and women who have demonstrated marked ability in research in chemical or biological science and who wish to broaden their fields of investigation. Fellowships will be awarded as soon as possible after March 1. Appointments are for one year, with tenure beginning July 1, 1952, unless otherwise arranged. Study may be carried out in this country or abroad. A stipulation is that each fellow shall pursue his research at an institution other than that which granted his doctoral degree, except in unusual cases. The fellowships were established in 1946 with a grant of $100,000 from Merck & Co., Inc., since supplemented by additional grants totalling $95,000. Further information and application blanks may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Ave., Washington 25, D. C. A similar fellowship program has been established in Canada by Merck & Co. Limited, the Canadian subsidiary of Merck & Co., Inc., and is administered there by the National Research Council of Canada.

International Conference on Vitamins and Metabolism.—The University of Havana School of Medicine and Fundacion de Investigaciones Medicas are sponsoring an international conference on vitamins and metabolism in Havana, Cuba, January 25. This meeting will be held in the auditorium of the General Calixto Garcia Hospital in Havana from 8:30 a. m. to 9 p. m. The program will consist of lectures by many of the scientists who discovered, isolated, and synthesized vitamins. The fundamental chemistry, physiology, pharmacology, and pathology of vitamin deficiency diseases will be discussed, as well as methods of prophylaxis and treatment. Illustrative cases will be presented. The general chairmen of the conference will be Dr. Angel Vieta Barahona, dean of the medical school of the University of Havana; Dr. Jose Bisbe Alberni, professor of general pathology of the University of Havana, and Dr. Richard H. Young, dean of Northwestern University Medical School, Chicago. Among the North American speakers will be George R. Cowgill, Ph.D., Yale University, New Haven, Conn.; Conrad A. Elvehjem, Sc.D., University of Wisconsin, Madison; Karl A. Folkers, Ph.D., Merck and Company, Inc., Rahway, N. J.; Max F. Further, Ph.D., Hoffmann-La Roche & Company, Nutley, N. J.; Robert S. Harris, Ph.D., Massachusetts Institute of Technology, Cambridge; Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn.; Thomas H. Jukes, Ph.D., Lederle Laboratories, Pearl River, N. Y.; Charles G. King, Ph.D., The Nutrition Foundation, Inc., New York; Herbert G. Luther, Charles Pfizer and Company, Inc., Brooklyn; Dr. William P. Murphy, Peter Bent Brigham Hospital, Boston; Dr. William H. Sebrell Jr., National Institutes of Health, Bethesda, Md.; Dr. Elmer L. Sevringhaus, Hoffmann-La Roche, Inc., Nutley, N. J.; William Shive, University of Texas, and Robert R. Williams, M.S., Research Corporation, New York. Dr. Ramon Suarez, Fundacion de Investigaciones Clinicas, San Juan, Puerto Rico, will also be a speaker. The faculty of the University of Havana will present representative clinical cases. Dr. Tom D. Spies, Dr. Robert E. Stone, and Samuel Dreizen, D.D.S., Birmingham, Ala., will assist in the presentation of clinical cases which they have studied in Havana. The Hotel Nacional, the Hotel Presidente, and the Hotel Sevilla-Biltmore, three of Havana's leading hotels, are accessible to the General Calixto Garcia Hospital. The Southern Medical Association, the American Medical Association, and the World Medical rganization will be officially represented at this conference.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II*, Jan. 28-30. All centers where there are five or more candidates. Final date for filing application is Dec. 17. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Various Locations, July 18. Final date for filing application is Jan. 18. Sec., Dr. C. B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: *Written*. Various centers. March 1952. *Oral*. Chicago, May 1952. Final date for filing application is Feb. 1, 1952. Candidates for these tests must have completed three years of approved training prior to July 1, 1952. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

American Board of Neurological Surgery: *Oral*. Chicago, May 1952. Final date for filing applications for the May 1952 examination is Jan 1, 1952. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and Gynecology: *Written*. Feb. 1, 1952. Final date for filing applications was Nov. 1. *Oral*. Chicago, June 9-13, 1952. Final date for filing application is Feb. 1, 1952. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written*. Twenty-five centers, Feb. 4-5, 1952. Sec., Dr. Edwin B. Dumphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Final date for filing applications for the 1952 Part II examinations was Aug. 15. Final date for filing application for the 1952 Part I examination is Nov. 30. Sec., Dr. *Harold* A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Pediatrics: *Written examination* under local
Jan. 11. This is the only written examination which will be giv
1952. *Oral*. New York City, Feb. 1-3; St. Louis, Mo., April; Wa
D. C., May 3-5; San Francisco, late June; Chicago, October an
late November. Exec. Sec., Dr. John McK. Mitchell, 6 Cush
Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation:
and II. Chicago. June 9-10. Sec., Dr. Robert L. Bennett, Georg
Springs Foundation, Warm Springs, Ga.

Amercian Board of Psychiatry and Neurology: *Oral* New Y
17-18. Final date for filing applications was Sept. 1. Act. Sec.,
A. Boyd Jr., 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology: *Oral*. Spring 1952. Final date
application is Dec. 31. Sec., Dr. B. R. Kirklin, 102-110 Sec
S.W., Rochester, Minn.

American Board of Surgery: *Written*. Various Centers. Ma
Final date for filing application was Dec. 1, 1951. The followi
examination will be given in October 1952. Sec., Dr. J. Stewar
225 S. 15th St., Philadelphia.

Board of Thoracic Surgery: Various parts of the country. Wr
29, 1952. Final date for filing application is Jan. 15. Sec., D
M. Tuttle, 1151 Taylor Ave., Detroit 2.

American Board of Urology: Chicago, Feb. 9-13, 1952. Fina
filing applications was Sept. 1. Sec., Dr. Harry Culver, 30 West
Minneapolis 16.

MEETIN

American College of Clinic Administrators, Conrad Hil
Chicago, Jan. 13-15. Dr. R. J. Wilkinson Jr., 1115 Sixth Ave
ington, W. Va., President.

American College of Radiology, Palmer House, Chicago, F
William E. Stronach, 20 N. Wacker Drive, Chicago 6,
Secretary.

American Society for Surgery of the Hand, Palmer House
Jan. 25-26. Dr. J. H. Boyes, 1401 S. Hope St., Los Angeles 15,

Annual Congress on Industrial Health, William Penn H
burgh, Jan. 18-19. Dr. Carl M. Peterson, 535 N. Dearborn S
10, *Secretary*.

International Medical Assembly of Southwest Texas, Muni
torium, San Antonio, Jan. 22-24. Dr. John J. Hinchey, P. O.
San Antonio 6, Secretary.

Puerto Rico Medical Association, Santurce, Dec. 12-16. Dr
Montilla, P. O. Box 3866, Santurce, Secretary.

Southern Section, American Laryngological, Rhinological
logical Society, Atlanta, Ga., Jan. 14. Dr. Lester A. Brown,
tree St. N.E., Atlanta 3, Ga., Vice President.

INTERNATIONAL

Australasian Medical Congress, Melbourne Victoria, Aust
22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Alber
Melbourne, Victoria, Australia, Hon. General Secretary.

Commonwealth and Empire Health and Tuberculosis C
Central Hall, London, England, July 8-13. Dr. J. H. Harley
Tavistock House North, Tavistock Sq., London, W.C.1, Eng
retary General.

Congress of the International Diabetes Federation, Leyde
lands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hag
lands, Secretary.

Inter-American Congress of Radiology, Mexico City, Mexico,
Dr. Guido Torres Martinez, Marsella No. 11, Mexico, D.F.,
General.

International College of Surgeons, Madrid, Spain, May
Max Thorek, 850 West Irving Park Road, Chicago, Ill.,
Secretary-General.

International Congress of Internal Medicine, Friends House
N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall
London, S.W.1, England, Secretary.

International Congress on Mental Health, Mexico City, Me
11-19. Mrs. Grace E. O'Neill, Division of World Affairs, Na
sociation on Mental Health, 1790 Broadway, New York
U. S. A.

International Congress on Neuropathology, Rome, Italy,
Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y.,
Secretary General.

International Congress of Physical Medicine, *London, Eng*
14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London
England, Hon. Secretary.

Latin American Congress of Physical Medicine, Panama Ci
Feb. 24-29. Dr. Cassius Lopez de Victoria, 176 East 71st St.,
N. Y., U. S. A., Executive Director.

Neuroradiologic Symposium, Stockholm, Sweden, *Sept. 17-2*
Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarett
holm K., Sweden, Secretary.

Pan American Congress of Ophthalmology, Mexico City, Me
6-12. Dr. Luis Sanchez Bulnes, Gomez Farias 19, *Mexico*
Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronc
gology, Havana, Cuba, Jan. 20-24. Dr. Pedro Hernandez
8 No. 358, Vedado, Havana, Cuba, *General Secretary*.

DEATHS

Ippolito, Anthony Samuel ⊕ Chicago; born in Chicago Sept. 19, 1917; Loyola University School of Medicine, Chicago, 1943; instructor of orthopedic surgery at the University of Illinois College of Medicine and the Cook County Graduate School of Medicine; specialist certified by the American Board of Orthopaedic Surgeons; member of the American Academy of Orthopaedic Surgery, Chicago Orthopaedic Society, and the Clinical Orthopaedic Society; fellow of the American College of Surgeons; a captain in the medical corps of the U. S. Army during World War II, serving at a first aid station in Germany for many months; examining physician for the children who were members of the Hull House; affiliated with Columbus, St. Elizabeth's, and Cook County hospitals; at one time star fullback of Purdue University in La Fayette, Ind., and the Chicago Bears football team; died near Evanston, Wyo., in a train accident November 12, aged 34.

Harvey, Norman Darrell ⊕ Pelham, N. Y.; born in 1865; College of Physicians and Surgeons, medical department of Columbia College, New York, 1888; past president of the Rhode Island Medical Society; member of the American Academy of Ophthalmology and Otolaryngology, American Otological Society, New England Ophthalmological Society, and the New England Otolaryngological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; served with the Rhode Island National Guard, and during the Spanish-American War; for many years practiced in Providence, R. I., where he was a consulting surgeon at Rhode Island Hospital and consulting ophthalmic surgeon at Providence Lying-In Hospital, Butler Hospital, Charles V. Chapin Hospital, and Newport (R. I.) Hospital; died in a hospital at New Rochelle, October 13, aged 86.

Ehler, Adrian Augustus, Albany, N. Y.; born in New Rochelle, N. Y., Oct. 5, 1908; Yale University School of Medicine, New Haven, 1933; associate professor of surgery (thoracic surgery), Albany Medical College; instructor in thoracic surgery, University of Michigan Medical School, Ann Arbor, from 1937 to 1939; certified by the National Board of Medical Examiners; member of the American Medical Association, American Trudeau Society, and the American Association for Thoracic Surgery; fellow of the American College of Surgeons; director of the Albany County Tuberculosis Association and vice-president of the Albany County Heart Association; served on the staffs of Glenridge Sanatorium in Schenectady, Homestead Sanatorium in Middle Grove, Pine Crest Sanatorium in Salisbury Center, Vermont Sanatorium in Pittsford, and the Albany Hospital, where he died November 5, aged 43, of acute leukemia.

Bland, Curtis ⊕ Oaktown, Ind.; Medical College of Indiana, Indianapolis, 1905; served overseas during World War I; died in the Veterans Administration Hospital, Indianapolis, September 6, aged 78, of hypertensive cardiovascular disease.

Chesley, Harry Oscar, Rollinsford, N. H.; Dartmouth Medical School, Hanover, 1898; member of the American Medical Association; died August 5, aged 79, of carcinoma of the colon and liver.

Clothier, Joseph V., Pocatello, Idaho; University of Pennsylvania Department of Medicine, Philadelphia, 1900; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; affiliated with Pocatello General Hospital; died in Encino, Calif., October 16, aged 72.

Covner, Albert Henry ⊕ Lynn, Mass.; Tufts College Medical School, Boston, 1924; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; affiliated with Lynn and Union hospitals; died November 9, aged 51.

Cunningham, Thomas Edward ⊕ Cambridge, Mass.; Harvard Medical School, Boston, 1910; an Associate Fellow of the American Medical Association; died in Holy Ghost Hospital September 11, aged 68, of multiple cerebral thrombosis.

Dougherty, John Allen ⊕ Oakland, Calif.; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; served in France during World War I; affiliated with Alameda County, East Oakland, and Providence hospitals in Oakland, Alameda Hospital in Alameda and Richmond Hospital in Richmond; died in Piedmont October 6, aged 60, of bulbar palsy and pulmonary tuberculosis.

Drago, Christie Joseph, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1918; member of the American Medical Association; served during World War I; for many years on the staffs of Hospital of St. Giles the Cripple and the Samaritan Hospital; died October 23, aged 58, of cerebral hemorrhage.

Durling, James Krotzer ⊕ Wadsworth, Ohio; University of Michigan Homeopathic Medical College, Ann Arbor, 1919; served as president, vice-president, secretary, and treasurer of Medina County Medical Society; died in the Cleveland Clinic Hospital in Cleveland recently, aged 57, of congestive heart failure and arteriosclerotic heart disease.

Embry, Jerre Carl, Vincent, Ala.; Atlanta Medical College, 1889; member of the American Medical Association; died in Birmingham August 21, aged 85, of massive hemorrhage and carcinoma of the stomach.

Emerson, William Robie Patten ⊕ Boston; Harvard Medical School, Boston, 1899; an Associate Fellow of the American Medical Association; member of the New England Pediatric Society; professor of pediatrics emeritus at Tufts College Medical School; on the staffs of the Boston City and Massachusetts General hospitals; died September 5, aged 81, of cerebral hemorrhage.

Fisher, James E., Rome, Tenn.; University of Nashville Medical Department, 1907; died August 10, aged 71, of carcinoma of the pancreas.

Graham, Thomas Garland, Lafayette, Ind.; University of Louisville (Ky.) School of Medicine, 1933; member of the American Medical Association; served during World War II; on the staffs of Lafayette Home Hospital and St. Elizabeth Hospital; died October 7, aged 42, of injuries received in a plane accident.

Hagen, Walter Thomas, Green Bay, Wis.; Jefferson Medical College of Philadelphia, 1891; died August 15, aged 82, of cardiac decompensation and chronic myocarditis.

Hamer, John Dayton, Lowell, Ariz.; University of Nebraska College of Medicine, Omaha, 1937; member of the American Medical Association; died October 12, aged 39.

Hanson, Herbert Theodore, Madison, Wis.; University of Minnesota Medical School, Minneapolis, 1946; assistant professor of physiological chemistry at the University of Wisconsin Medical School; on the staff of Wisconsin General Hospital; died August 25, aged 30, of brain tumor.

Johnson, Raymond Lovejoy, Waycross, Ga.; University of Maryland School of Medicine, Baltimore, 1914; member of the American Medical Association; fellow of the American College of Surgeons; served on the staff of Ware County Hospital, where he died September 1, aged 69, of coronary occlusion.

Kory, Roscoe Conklin ⊕ Little Rock, Ark.; Medical Department of Tulane University of Louisiana, New Orleans, 1910; emeritus professor of surgery (ophthalmology) at the University of Arkansas School of Medicine; member of the staffs of St. Vincent's Infirmary, Missouri Pacific Hospital, and Arkansas Baptist Hospital; died September 29, aged 66, of coronary occlusion.

⊕ Indicates Fellow of the American Medical Association.

Lampe, Elmer Lewis ⊕ Bellevue, Iowa; State University of Iowa College of Medicine, Iowa City, 1910; for many years health officer; on the staff of Bellevue Memorial Hospital; affiliated with Finley and St. Joseph Mercy hospitals in Dubuque; died in University Hospital, Iowa City, September 22, aged 66, of ruptured aneurysm of the right internal iliac artery.

McClelland, Charles Stewart, Butler, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; died August 22, aged 80, as the result of a fractured back received in a fall.

Mitchell, Wilfrid Bede ⊕ Detroit; Detroit College of Medicine and Surgery, 1925; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; served during World Wars I and II; affiliated with Grace Hospital, where he died October 20, aged 53, of intraventricular hemorrhage.

Mitchell, William Wright, Memphis, Tenn.; Memphis Hospital Medical College, 1907; Columbia University College of Physicians and Surgeons, New York, 1908; also a lawyer; died October 9, aged 68, of uremia.

Negley, James Casper ⊕ Glendale, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1910; member of the American Urological Association; fellow of the American College of Surgeons; specialist certified by the American Board of Urology; on the staff of Los Angeles County Hospital in Los Angeles and the Physicians and Surgeons Hospital in Glendale; died in Glendale Sanitarium and Hospital October 23, aged 68, of coronary occlusion.

Powell, Nettie Bainbridge, Marion, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; member of the American Medical Association; past president and secretary of the Grant County Medical Society; first secretary of the Grant County Tuberculosis Association; formerly secretary of the board of health of Marion; served as a member of the board of directors of the Grant County Hospital Association; one of the founders of the Marion General Hospital; died September 26, aged 83, of cardiovascular renal disease.

Riley, Lincoln, Wisner, Neb.; State University of Iowa College of Medicine, Iowa City, 1888; served during World War I; died in Norfolk October 14, aged 84, of cerebral hemorrhage.

olston, Theron Rice ⊕ New Hope, Va.; Medical College of rginia, Richmond, 1929; member of the county school board; affiliated with King's Daughters' Hospital in Staunton and Community Hospital in Waynesboro; died in Tucker Hospital, Richmond, September 23, aged 49, of coronary thrombosis.

Schemmer, Anthony L., Colby, Wis.; Marquette University School of Medicine, Milwaukee, 1913; member of the American Medical Association; past president of the Clark County Medical Society; served as health officer for the town of Hull; member of the staff of St. Joseph's Hospital in Marshfield; died August 23, aged 61, of coronary thrombosis and arteriosclerotic heart disease.

Stevenson, Forney Caldwell, Montgomery, Ala.; Columbia University College of Physicians and Surgeons, New York, 1893; member of the American Medical Association; for many years a member of the county and city board of health, of which he had been president; served as president of the county board of education; affiliated with St. Margaret's Hospital; died September 9, aged 78, of suffocation when flames swept through his home.

Thompson, James Albert, St. Johnsbury, Vt.; McGill University Faculty of Medicine, Montreal, Canada, 1897; member of the American Medical Association; on the staffs of the Brightlook and St. Johnsbury hospitals; died September 29, aged 77, of coronary thrombosis.

Tremain, George W., St. Louis (licensed in Missouri in 1902); died September 21, aged 78, of heart disease.

West, Oscar Caldwell ⊕ Phoenix, Ariz.; Atlanta College of Physicians and Surgeons, 1899; served as health officer of Maricopa County, and as city and county health officer in Albuquerque, N. Mex.; received decorations from the government of Mexico and from Chile for his work on bubonic plague; died October 20, aged 72, of carcinoma of the lung.

West, William Moore ⊕ Monett, Mo.; Beaumont Hospital M
cal College, St. Louis, 1898; an Associate Fellow of the A
can Medical Association and member of its House of Dele
from 1933 to 1937; fellow of the American College of
geons; served during World War I; for many years local r
trar of vital statistics; formerly chief of staff, West Hos
now known as St. Vincent's Hospital; died in St. John's H
tal, Springfield, Mo., October 6, aged 78, of myocardial in
tion and hypertensive and arteriosclerotic heart disease.

Whisler, Edward Livingstone, Los Angeles; Starling Me
College, Columbus, Ohio, 1904; died in Hollywood Presbyt
Hospital October 22, aged 75, of carcinoma of the sigmoid.

White, John Francis, La Mesa, Calif.; College of Physi
and Surgeons of San Francisco, 1897; member of the Ame
Medical Association; past president of the board of heal
Auburn; died in Paradise Valley Sanitarium, National
September 15, aged 77, of carcinoma.

Wigton, Harrison Alonzo ⊕ Omaha; University of Neb
College of Medicine, Omaha, 1905; professor emeritus of n
psychiatry at his alma mater; specialist certified by the A
can Board of Psychiatry and Neurology; fellow of the Ame
College of Physicians; affiliated with Douglas County Ho
Immanuel Deaconess Institute, Clarkson Hospital, Lut
Hospital, Nebraska Methodist Hospital, and Universi
Nebraska Hospital; trustee of the Hastings (Neb.) College
October 9, aged 72, of hypertension and cerebral throm

Willis, William Moore, Farmville, N. C.; Medical Coll
Virginia, Richmond, 1914; died in Rocky Mount August 4
61, of gastric hemorrhage and duodenal ulcer.

Witzberger, C. Michael, Tucson, Ariz.; New York Homeo
Medical College and Flower Hospital, New York, 1934; for
on the faculty of his alma mater; member of the American
cal Association and the American Academy of Pedi
specialist certified by the American Board of Pediatrics; aff
with Tucson Medical Center and Pima County Hospital
August 18, aged 44, of a skull fracture received in an autor
accident.

Woods, Robert A., Clark, Mo.; University Medical Coll
Kansas City, Mo., 1892; died September 30, aged 82.

Wright, Eugene Orwin, Sheridan, Wyo.; Medical Coll
Virginia, Richmond, 1938; member of the American M
Association; served with the Veterans Administration; d
Denver October 10, aged 39, of cirrhosis of the liver.

Yoakam, Arthur Jacob, Homer, Ohio; Starling Medica
lege, Columbus, 1898; died in Memorial Hospital, Moun
non, August 31, aged 75.

Young, Philip Samuel, Sidney, N. Y.; Albany (N. Y.) M
College, 1896; served during World War I; died Augu
aged 77, of coronary occlusion.

Zimmerman, Joseph Jack ⊕ Philadelphia; University of
sylvania School of Medicine, Philadelphia, 1940; speciali
tified by the American Board of Internal Medicine; served
World War II; instructor in medicine at his alma mate
assistant instructor in medicine at the graduate school;
staffs of St. Agnes and Philadelphia General hospitals;
October 11, aged 36, of heart attack.

DIED WHILE IN MILITARY SERVICE

Barber, Albert C. ⊕ Commander, U. S. Navy, Chica
University of Illinois College of Medicine, Chicago, 19
member of the Illinois State Medical Society; associal
with the Chicago Board of Health on a part-time basis
many years; served during World Wars I and II; enter
the medical corps of the U. S. Naval Reserve in Augu
1942; following various assignments ashore and aflo
was transferred to the regular navy in July, 1946; at
time of death was serving at the naval ammunition de
in Hawthorne, Nev.; died September 30, aged 51, of
juries received in an automobile accident near Luni
Nev.

GOVERNMENT SERVICES

ELECTIVE SERVICE

lective Service System.—The information bulletin, vol. 2, No. , of the National Advisory Committee to the Selective Service stem reads as follows:

> ubject: New graduates in priority 3 who are also regular registrants and o have been deferred for any cause since June 19, 1951, and therefore e their liability for military service extended to their 35th birthday.
>
> ast June there were a number who graduated from medical school who regular registrants not having attained their 26th birthday and who n registered as special registrants in priority 3 as required by law, er having had military service subsequent to *September 16, 1940*, and e not deferred prior to March 31, 1947, by the Selective Service local rd for the purpose of studying medicine or were not ASTP or V-12 *dents* with less than 21 months of active duty. The percentage of such duates will increase each year.
>
> our advice to local boards on these individuals should be to the effect t they be deferred until the completion of their first year of internship, necessary in training for an essential occupation, and that at about the e of the completion of such internships, the registrant should be advised apply for a commission and *simultaneously for immediate active duty.* they do not apply for active duty, they will become priority 3 reserve cers which will not relieve them of their liability under the general visions of the Universal Military Training and Service Act, as amended. f they apply for a commission and as the result of their volunteering y are given immediate active duty, they will be classified as 1-C by ir local boards on both registrations. They will thus be given the opportity of serving their 24 months at a convenient time in their professional eers rather than at some future date, less convenient, prior to the ent of their 35th birthdays.

JBLIC HEALTH SERVICE

blic Health Journals Merge.—Beginning in January, 1952, *blic Health Reports* will be published monthly. Two other hnical publications of the Public Health Service—the *Journal Venereal Disease Information* and the *Communicable Disease nter Bulletin*—are being merged with it. The merger has come out as the result of an extended study of the Public Health rvice's publishing activities. The new journal is designed to rry out more efficiently and economically the Public Health rvice's responsibilities for disseminating scientific information matters of health.

The new *Public Health Reports* will be concerned with the hnical and professional aspects of public health practice, with oblems of health administration, and with research in these lds. It will include substantially the types of material that ve been appearing in the three present journals and the onthly Tuberculosis Control Issue of *Public Health Reports.* ere will be more emphasis, however, on administrative prace, program development, and applied research aspects and less nphasis on bench research and clinical material not directly lated to public health practice. As has been true with each the present journals, the pages of the new *Public Health Rerts* will be open, on merit, to any responsible author. General litorial guidance will be provided by a board of editors comsed of individuals of recognized competence and professional ature drawn from both within and outside the federal service.

Every effort will be made to furnish the new *Public Health eports* to representative organizations in public health and its lated fields. Most of the readers on the mailing list are affilied with organizations to which free distribution can legally e made. They will continue to receive the new journal either irectly or through these organizations. The first issue of the ew *Public Health Reports* and an application form for a free ubscription will be sent to readers now on the free lists for chnical periodicals. After they have had an opportunity to reiew the new *Public Health Reports* and to consider its usefulness in their work, readers who wish to remain on the lists and eceive the new periodical regularly should complete the application and send it in as soon as possible. This will allow time o revise the lists for mailing the second and subsequent issues. he new *Public Health Reports* will also be available by paid ubscription from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Regular Corps Examination for Medical Officers.—Competitive examinations for appointment of medical officers to the regular corps of the United States Public Health Service will be held February 5-7, 1952, at a number of points throughout the United States. Applications must be received no later than January 2. Appointments will be made in the grades of assistant surgeon (equivalent to Navy rank of lieutenant [jg]) and senior assistant surgeon (equivalent to lieutenant). Gross pay is the same as for officers of equivalent rank in the Army and Navy. Entrance pay for an assistant surgeon with dependents is $5,686.56 per annum; for senior assistant surgeon with dependents, $6,546. These figures include the $1,200 annual additional pay received by medical officers as well as subsistence and rental allowance.

In making assignments, consideration is given to the officer's preference, ability, and experience; however, all commissioned officers are subject to change of station and assignment as necessitated by the needs of the service. Appointments are permanent and provide opportunities to qualified physicians for a life career in clinical medicine, research, and public health.

Applicants for either grade must be United States citizens who are at least 21 years of age and who have graduated from a recognized school of medicine. Applicants for the grade of assistant surgeon must have at least seven years of educational training and professional experience subsequent to high school. Applicants for the grade of senior assistant surgeon must have at least 10 years of educational training and professional experience subsequent to high school. Physicians who are successful in the examination and are now serving internships will not be placed on active duty in the regular corps until completion of internship.

Application forms and additional information may be obtained by writing to the Surgeon General, United States Public Health Service, Federal Security Agency, Washington 25, D. C. Attention: Division of Commissioned Officers.

Distribution of Yellow Fever Vaccine.—According to the Surgeon General of the Public Health Service (General Circular No. 99, Supplement 1) the Rocky Mountain Laboratory of the Public Health Service is the only laboratory in the United States on the World Health Organization's list of institutions producing approved yellow fever vaccine. Because the vaccine is highly thermolabile and must be stored and transported at a subfreezing temperature, strict control of its handling is required.

The director of the Rocky Mountain Laboratory, Hamilton Mont., in collaboration with the Laboratory of Biologics Control, National Institutes of Health, is responsible for setting standards for the transportation, storage, and administration of the yellow fever vaccine. Shipments of the vaccine originate from the Rocky Mountain Laboratory and are routed directly to the user except as provided below. The vaccine is not redistributed. The vaccine is distributed in the United States to the following facilities: (1) Public Health Service facilities; (2) Department of Defense installations; (3) organizations with large numbers of employees going into yellow fever areas; and (4) one health department of a state in which a yellow fever clinic of the Public Health Service is not available. The Epidemiology and Immunization Branch of the Division of Foreign Quarantine is responsible for approving facilities for the receipt of the vaccine, and investigates compliance with requirements for handling the vaccine.

The vaccine may be sold to private concerns, or their agents, to be sent abroad for inoculation of employees in yellow fever areas. It may also be sold to approved foreign governments. Inasmuch as the vaccine is on the restricted commodity list of the Office of International Trade, Department of Commerce, all sales for the purpose of exportation except those to Canada and countries of Central and South America must be approved by that agency. Orders not meeting the requirements of the Office of International Trade will be referred to the administrative officer of the Microbiological Institute.

FOREIGN LETTERS

ITALY

Medicosurgical Association.—At the Ionian Association of Medicine and Surgery meeting in Taranto, Prof. Carlucci lectured on treatment of tuberculous epididymitis from the clinical and social points of view. He demonstrated the rare advantage of the conservative methods based on local and general injections and stated that surgical intervention for removal of the epididymis and the extrapelvic vas deferens is the most suitable treatment. This type of intervention does not impair the preeminent function of the testis, because it is limited to the elimination of the external secretion and does not interfere with the hormonal secretion. The treatment is of considerable social interest, because within days it allows persons already debilitated by the long duration of pain, depressed by the chronic disease, and accustomed to change from one hospital to the other, to resume their occupations.

Prof. Buonsanti reported on the problem of surgery of cancer of the rectum, emphasizing that this chapter of neoplastic surgery has been discussed for 125 years, i. e., since Lisfranc performed the first operation. Twenty-two years ago a convention of surgeons studied surgery of cancer of the rectum in a specific way; a statement of Prof. Biaggio on that occasion, which affirmed that there is not yet a specific operation for this pathological process, is still valid today. There are two fundamental surgical techniques: (1) radical, through the perineum and the coccyx, and (2) conservative, through the abdomen. The latter, conceived by Mayo, is best for the surgeon who is more interested in the precarious operative results than in the safety of a radical exeresis.

Today the total operative mortality rate, because of the improvements of the laparotomy technique, is highly satisfactory in the hands of such experts as Mayo, but the evaluation of statistics presenting high survival rates should be guarded since the latter may be misleading because of misconception concerning some processes that are highly invasive with respect to lymph odes, representing Group C_2 of tumors according to Dukes' classification. The large number of surgical methods proposed (more than 30) and their late results show the need to refrain from aggravating the conditions of the patients by radical operation.

Because radical exeresis is not feasible, owing to the unknown origin of the lesion, Prof. Buonsanti considers that a conservative treatment like Mayo's is to be preferred, because it will give the patient the illusion of a desired recovery without functional sacrifices.

Nitrogen Mustard Poisoning.—Reports on experimental nitrogen mustard poisoning were presented at a meeting of the medicosurgical association of Pavia. Dr. Cattaneo made microscopic studies of the behavior of the liver in two groups of experimental animals to which nitrogen mustard had been administered by intramuscular route. Regular therapeutic doses, i. e., 0.10 mg. of nitrogen mustard per kilogram of body weight were administered for four or five consecutive days to the first group of animals, while highly toxic doses, i. e., 2 to 3 mg. per kilogram of body weight, were administered to the second group. The microscopic picture of the liver in the first group did not present significant changes. In the second group, the microscopic examination yielded evidence that nitrogen mustard in the doses used exerts a pronounced hepatotoxic action. This is characterized by more or less diffuse congestion of the liver, with some hemorrhagic foci generally localized in the intralobular spaces, and also by a cloudy degeneration of the hepatic cells associated with signs of nuclear disturbance. In some animals of the second group, severe lesions were observed associated with areas of pronounced nuclear fragmentation and small points of necrosis.

Dr. Cattaneo expressed the opinion that these lesions, in addition to the hepatotoxic action exerted by nitrogen mustard, are attributable to pre-existing areas of decreased functional activity of the liver caused by previous or still present disease processes or by circulatory disturbances. In the presence of the poison
these zones have the biologic characteristics of areas of
resistance.

Dr. Cattaneo and Dr. Tartara reported on the histologica
dition of the heart and of the great vessels in experiment
mals treated with nitrogen mustard intramuscularly in re
therapeutic doses and also in highly toxic doses. Alteration
not observed in the group treated with therapeutic doses,
some lesions were observed in the second group. The gre
sels sometimes showed considerable capillary dilatation
adventitial and the periadventitial areas. The heart sl
especially in the papillary muscles and in the subendo
areas, a pronounced ectasia of the capillaries and the pı
laries with eruption of red blood cells either by diaped
by rhexis, and with formation of interstitial edema. In th
involved areas the muscular fibrils presented signs of
swelling and also of vacuolation. The speakers emphasi:
importance of these findings in connection with the mec
of the production of some electrocardiographic alteratic
served in these animals.

Drs. F. Cattaneo and I. Cattaneo reported on the blo
ture in experimental nitrogen mustard poisoning after
ectomy. As in the other experiments the animals had r
nitrogen mustard intramuscularly in therapeutic doses
highly toxic doses. Results of the research showed tha
ectomy does not affect the hematopoietic response of tl
marrow to nitrogen mustard. On the contrary, splenectom
to have a beneficial effect on the resistance of the cir
blood elements; but this antileukocytolytic and antihe
effect does not seem to be of great practical importance,
it changes only slightly the course of the leukocyte and
cyte curves that are recorded after the administration c
gen mustard. Therefore, Rosenthal's concept of the nece
splenectomy in patients with Hodgkin's disease, before r
mustard is given, cannot be accepted, according to the s
because the direct and indirect risks associated with the
intervention are too numerous compared with the ver
advantages that can be obtained with splenectomy.

Professor Diamare.—The national award of the Academ
Lincei for biologic sciences was conferred on Prof. V
Diamare, who holds the chair of histology and general
ogy of the University of Naples. His studies cover all
biology and particularly endocrinology and comparati
phology of the pancreas and of the adrenals. Professor I
first described the morphological importance of the ins
sue as a structural element completely independent fr
exocrine zymogenic tissue of the pancreas. These Im
studies paved the way for Banting and Best to discover

SWEDEN

Where Should Thoracoplasty Be Performed?—The num
variety of surgical operations for pulmonary tuberculos
every year in Sweden, where a conflict has lately aris
the choice of institution in which these operations are to
formed. Is the patient to be operated on in a sanatorium, w
can enjoy all the benefits of a sanatorium regimen, or is h
shuttled from sanatorium to surgical hospital and back
The former plan was endorsed at a meeting in Gothenl
May 20, 1951, of the Association of Tuberculosis Doctors
unanimously passed a resolution to this effect. This verc
drawn a protest from a surgeon, Dr. G. Vidfelt of the V
Hospital, where 32 beds are reserved for thoracoplastic ca
many thoracoplastic operations are performed weekly. He
out that at this hospital postoperative suppuration of the p
almost unknown, whereas the literature on the subject
that elsewhere up to 70% of these operations are follo
empyema—a sequel probably due to the neglect of tre
with antibiotics. Another complication is hemorrhage i
pleural cavity, which is to be expected in about 10%. It
so severe that the pleural cavity has to be reopened a
blood clots washed out. The possibility of this and othe
operative complications means that a surgical specialis

The items in these letters are contributed by regular correspondents in the various foreign countries.

lways be on the spot to deal with them, and at any rate the naller sanatoriums cannot expect to have such specialists on ıeir staffs.

'**omosexual Rate in Sweden.**—Kinsey's observation that in the 'nited States more than one male in three has a homosexual :cord is greeted by many Europeans with the question: Are s conclusions *valid anywhere outside the United States?* Dr. engt J. Lindberg and Dr. Greta Tessing-Ericsson of a psy- ıiatric hospital in Gothenburg have sought an answer to this ıestion, with respect to Sweden, by undertaking a special study : a consecutive series of 100 male patients during 1951. These en were questioned with special reference to homosexual pro- :nsities and experiences. That they answered frankly may be sumed from the honesty with which 86 of them admitted to ıving practiced masturbation at some time or other (the mastur- ıtion rate coincided with that of earlier observations). As many 60 had experienced homosexual invitations or gestures from her persons, but there were only five who admitted to homo- xual tendencies or acts in themselves. Even among this small ımber there were one or two who did not strictly fit into Kin- y's definition of a true homosexual. It may, of course, be ıjected that males attending a psychiatric clinic are not repre- ntative of Sweden as a whole in the matter of homosexuality, d it may well be that other groups in the community will ve to be studied before Sweden can claim that Kinsey's find- gs of homosexuality in 37% of males are not applicable to 'edes. With these reservations Dr. Lindberg and Dr. Tessing- icsson conclude that "this investigation undoubtedly shows at we are not entitled without more ado to apply to conditions Sweden the high frequency rate of homosexuality which nsey has found in his material."

curisy Risk After BCG Vaccination.—Two members of the ıff of the Serafimer Hospital in Stockholm, Dr. Gunnar Dahl- ım and Dr. Hans Difs, have undertaken a statistical and llow-up study of recruits found on entering the army to be perculin-negative. Among them were 36,235 who were vac- ıated with BCG and 25,239 who were not thus vaccinated CG vaccination is not compulsory in Sweden as it is in Nor- ıy). The two groups were strictly comparable, and the recruits t vaccinated with BCG should therefore serve as controls for : vaccinated group with respect to the subsequent develop- :nt of tuberculous pleurisy. Exudative tuberculous pleurisy ıs classified according to whether it was primary or secondary some other tuberculous lesion. The main interest attached to : primary cases, the secondary cases being numerically in- ;nificant. The cases of pleurisy were also classified according whether it developed early, before the BCG vaccination could expected to prove effective, or at a later stage, i. e., 180 days more after BCG vaccination. During the first of these periods, e., up to 180 days after the vaccination, there was no statis- :ally significant difference between the pleurisy rates in the two oups. During the second period there was a statistically sig- ficant difference in favor of the vaccinated group. It could : claimed that for the two periods together the pleurisy rate the BCG group and the control group was 1:2.8, whereas for e period dating from 180 days after vaccination, the differ- ıce in favor of the BCG group was as great at 1:5. These find- gs confirm those published in 1947 by Savilahti, whose ıaterial consisted of Finnish recruits belonging to the 1925-1926 asses.

'**ealth Control of Hospital Staffs.**—Some time ago a physician n the staff of a large hospital in Lund was appointed personnel ıedical officer with responsibility for the supervision of the ealth of the staff. Beds were put at his disposal for acute cases f illness among the staff, and he had to keep a health record f every member of the staff. This system is most useful in pre- enting the spread of infectious diseases, tuberculosis in par- cular, and it has been found to be effective in reducing the ckness rate in hospital. With the Lund hospital as an encour- ging example, Prof. Sune Genell, in charge of a large hospital ı Malmö, tried to reduce his own hospital sickness rate, which 'as double that of the Lund hospital. From 1949 onward he ıade a special study of this problem and repeatedly advocated lans for solving it on the Lund hospital lines. His recent resig- ation from the Malmö hospital was provoked by the passive bstruction he experienced and by his failure to achieve what he considered as a legitimate and much needed reform. In a statement issued to the press, he not only gives particulars about this incident but also discusses the wider aspects of a very old difficulty—that of bringing into line the conflicting interests of physicians and lay administrators.

DENMARK

Services of the Danish Medical Association.—From time to time the headquarters or Central Committee of the Danish Medical Association publishes in its weekly journal a detailed account of the many problems it is called on to solve. This survey is a useful reminder to the members of services rendered. To maintain closer contact with its branches, the association recently canvassed them with regard to the suggestion that it should send one of its staff to attend their meetings. Most of the branches thus canvassed endorsed this suggestion and issued a standing invitation to their meetings.

Here are some samples of the questions the association is expected to answer: One of its branches raised the question of BCG vaccination by nurses instead of by physicians, a choice that the association could not endorse. Another branch wanted to know if health insurance funds should be called on to defray the cost of brassières as if they were bandages. It was ruled that brassières should be paid for in this way only under exceptional circumstances and when there was a medical indication for them. In an open letter to the association a physician complained that its journal had refused to publish an article by him on nature healing and pulmonary tuberculosis. In the reply to his protest he was reminded that the correspondence columns of the journal bore witness to the liberality with which the editor published opinions he did not himself hold. But in this case, the physician had aired his opinions effectively in the daily press, and if everyone were to be given free access to the association's journal, what need was there for a discriminating editor at all? Another physician complained to the association of the numerous and urgent requests he received for the induction of abortion. He wanted to know what might happen to him if he passed on such a request to the police. The association replied that it was not in a position to act as a brake on such requests, which must always be met by scrupulous attention to current regulations. To refer such a request to the police would be illegal.

Another physician asked how he should answer the police when they requested him to hand over certain roentgenograms. He was advised to ask by what right this request was made and to refuse it without the patient's consent unless the police were backed by the law. A less serious problem was raised by another physician, who sent a newspaper clipping showing a parade of doctors and clergymen about to oppose each other in a football match. The physicians were dressed as for an operation. On this cutting was scribbled: "Is it possible?" The association, having weighed the pros and cons carefully, replied that it was possible.

In another case, the Danish public health authorities requested the opinion of the association on a complaint by the Danish Dental Association that certain physicians were devoting most of their time to dental extractions with the use of anesthesia on behalf of dental technicians. The association replied by referring to the law according to which physicians must not practice dentistry as their main occupation if they have not passed special examinations in dentistry. The association warned against such teamwork between physicians and dental technicians. It may be added that the peccant physicians in this affair were not members of the Danish Medical Association. The association is also often called on to give rulings concerning income tax. In one case, for example, a physician disagreed with the income tax authorities over his motoring mileage. How much of it was his private concern and how much a matter of medical practice? To which the association replied that this question is a hardy perennial, the answer to which is: "Keep separate accounts for the two." Another recurrent problem concerns medical certificates, and the latest version of it has to do with pregnant women needing certificates of their pregnancy to give them priority claims on railways and trams. The association did not wish to promote this plan. Many other examples are cited to illustrate the character of the work undertaken by the association on behalf of its members.

CORRESPONDENCE

MISSION MEDICAL SERVICE

To the Editor:—The tremendous physical and human needs of Asia, Africa, the islands of the Southwest Pacific, and the interior of Latin America are still far beyond the resources of all the combined government and private agencies. There is almost an unlimited job to be done. From every corner of the globe come appeals for more medical missionaries. In most areas government attitudes and regulations are favorable; in a few, such as Latin America and Turkey, the conditions of licensure are almost prohibitive; in others, like India, there are signs of relaxing the conditions of professional registration.

Medical missions have always tried to cooperate with the best in government programs. So far as is practicable and without impairing our essential Christian purpose, we wish to assist and supplement the constructive efforts of governments and the World Health Organization. This might be in cooperative planning in hospital facilities for a district or province, acting as the center for a community health program, offering internships to graduates of government medical schools, and other ways. In some areas missions have led the way in special fields, such as leprosy and tuberculosis. This might be extended to the care of the mentally ill and those suffering from chronic incapacitating diseases.

The vast majority of medical missionaries are assigned to general hospitals for general surgical and medical work. These hospitals present a great range in size, and in quality of equipment. Most of them are located in towns, some in small isolated places, and a few in large cities. The bed capacity runs from 50 to 200, with an average of about 70. A considerable majority are fairly modern, having running water, electricity, x-ray machine, a fair laboratory, a well-equipped operating room, and modern hospital beds. Very probably there is a school of nursing, and perhaps a few interns. The trend is steadily toward improvement of the facilities and quality of work.

In a broad sense all of the missionary physician's work should be medically educational. Increasingly in some areas the smaller hospitals are working out ways of cooperating with Christian medical schools. There were nine such schools of medicine in which North American Boards were cooperating, until China was closed and Korea devastated. Now there are three in India and one being planned in the Philippines, with a medical training institute under construction in the Congo. In these institutions and in the larger union hospitals linked to them there is scope for practice of the major specialties—orthopedic, thoracic, and neurological surgery, internal medicine, pediatrics, gynecology and obstetrics, clinical pathology, and the preclinical sciences. There is a steadily growing attention to organized public health —preventive and constructive. School and community health programs have been developed in some areas. For such, a full public health course would be essential; while, for those taking charge of a mission hospital, a short, intensive course, combining public health and tropical medicine, is highly desirable.

The candidate must be a graduate of a Class A medical school. An internship is, of course, essential. This may be a straight internship for the few who are definitely looking forward to a teaching or special assignment. For the majority a one or two-year rotating internship in a hospital with a good educational program is highly desirable. On the whole, the large city or municipal hospital with teaching connections probably offers the best type of service for the prospective medical missionary.

Since most medical missionaries have to do some surgery, and some a considerable amount, with a rather extensive repertoire, it is desirable to secure the advantage of at least a one-year surgical residency, if possible. For those planning to specialize in some particular branch, of course, residency service of three or four years is essential. Internships and residencies on the field are not feasible or desirable. There are very few setups on the field where this would be practicable. Specialty board diplomas are becoming increasingly important for those assigned to medical school faculties, although not yet recognized officially by governments.

The value of a formal course in tropical medicine—lon months) or short (four months)—varies with the area to wh doctor is appointed. For service in Central Africa it const "a must." The Belgian government requires it of those ass to the Congo. For those expecting to serve in subtropical a short intensive course in tropical medicine is highly desi Since tuberculosis is a serious problem in most areas s training in this branch would be of great value.

Everyone should secure a license to practice in one or states. As between state board and national board examin the latter are preferable because of the wide application diploma here and because it will be more generally reco abroad, if ever needed.

Ordinarily it is not wise or practicable to concentrate one line before going out the first time, but it is desirable some work in one or more of the important specialtie stetrics and gynecology, pediatrics, skin, eye, ear, nose and and orthopedic, thoracic or genitourinary surgery.

Some foreign mission boards or their denominational of education have funds from which a limited number o fide medical missionary candidates may receive grants r from $300 to $800 annually, which the recipient is expe repay if he does not get out to the field.

With some candidates, debts or heavy insurance obli are a serious deterrent. The average single salary is abou month, which varies with different boards and in differen This is doubled for a married couple. Then there are generous children's and other allowances, which usually of a rather comfortable level of living on the field.

The choice of field and final assignment is a resultant applicant's preference and the mission board's opinion needs and qualifications. The appointing society is ge anxious to reconcile the personal wish and the greatest ness. One cannot always look forward to being place definite job in a definite place. In some instances it is pos carry this out, beginning within a year of sailing. In ge missionary is appointed to an area or mission and not to a station. The final decision regarding stationing rests w mission on the field in conference with the individual con

A medical missionary's work should be considered as long service. Temporary work cannot hope to make a like the contribution that long service can do. The acq of the language, knowledge of the people, as well as and professional experience, all mean greatly accumulati fulness after the first few years. A few special short-term a ments are occasionally made to meet exceptional situatio there is no regular provision for such appointments.

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DENIAL OF PSYCHOLOGICAL IMPLICATIONS OF AIR ATTACKS

To the Editor:—In his article "Nature of Air Raid Cas (*J. A. M. A.* **147**:858 [Oct. 27] 1951), Dr. Cortez F. Enlo it questionable to take protective measures such as psy first-aid stations in case of impending catastrophe. I mu tradict this statement and its dangerous implications on th of personal experiences. His statement is only relativel so far as the immediate impact of initial bombing does no increase of psychotic reactions. However, this is dependent kind of population, the training and preparation of the tion, and the skillful training of physicians and psychiat face those catastrophic circumstances. We may expect lowing types of reactions:

1. *Anticipatory Fear Reactions.*—Rumors, false alarm bad organization of civilian defense may provoke all ki panicky reactions. The experiences during the *Orson* panic after his broadcast on the "Invasion by *Mars*" impressed deeply on our minds.

2. *Fear Incubation.*—Many of the fear reactions will come the fore after the impact of the calamity, sometimes months er.

3. *Paradoxical Fear Reactions.*—The psychoneurosis may cur after the cessation of tension and danger in the period of ative calmness.

4. *Disguised Fear Reactions.*—Disguised fear may deny the istence of psychological implications and manifestations. Fear ticipation and unbearable tension may be expressed in a stream psychosomatic complaints or in certain unsocial attitudes like athy, rebellion, escape reactions. Those disguised fear reacns may influence the leaders and their decisions.

5. *The Uncertain Factor of Morale.*—Mass panics occurred ring the first and second world wars and will occur during an entual third world war. It is difficult to determine how strong emotional backbone of a population is, but, when medical d psychiatric staffs are unprepared for it, the confusion and astrophe will be greater.

6. *Fear Infection.*—The influence of certain personalities in o panic may be contagious and disastrous for their environnt. They may show the varied symptoms of the battle neuro. They can be treated instantaneously in order to prevent their luence on others.

7. *Psychiatric First Aid.*—Simple rules about psychiatric first under those circumstances are listed in my article in the *nerican Journal of Psychotherapy* for July, 1951.

Great Britain and Holland—the field of my experience—has own how well trained and prepared populations and medical ffs can take the catastrophe.

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GENIC STERILIZATION, 1950

the Editor:—Sexual sterilization, as a method of prevention the transmission of mental deficiency, psychosis, or other editary disease, was provided under state laws for 1,526 pants in 1950 (Publication No. 5 of the Human Betterment sociation of America, 2 E. 103rd St., New York 29). This is light increase over the 1,500 reported in 1949 (J. A. M. A. :783, 1950). The greater frequency of direct inheritance of ntal deficiency probably accounts for the fact that the larger portion, 62%, were for this cause. Mental disease was the ief cause for 34% and other reasons for 3%.

The largest number, 295, was reported by North Carolina, lowed by California (275), Georgia (226), Virginia (204), and va (113).

North Carolina was also the leading state when population considered, with 7.3 eugenic sterilizations per 100,000. The es for the other states are shown in the chart. States having rilization laws which were not applied in 1950 are Arizona, aho, Mississippi, Montana, Oklahoma, and West Virginia. The erage for the 27 states with sterilization laws was 2.5.

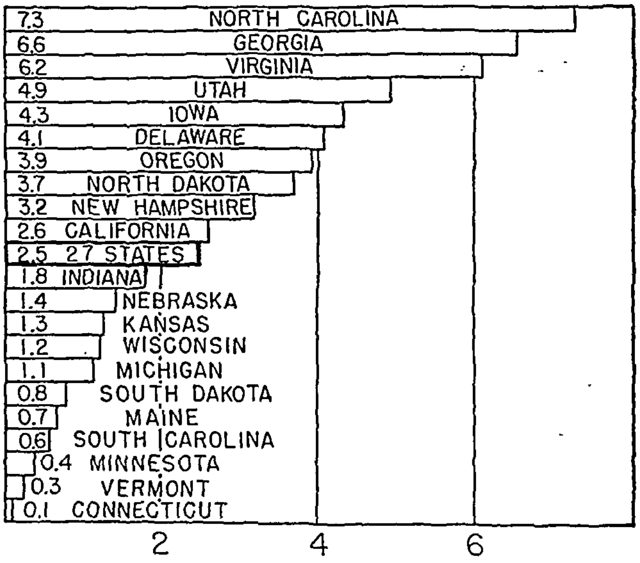
Sterilization of females under the state laws is usually done salpingectomy. Some laws specify this method; others limit e procedure to one which will not "unsex" the patient. Since e uterus will perform no further useful function in a sterilized oman, Williams, Jones, and Merrill (*Am. J. Obst. & Gynec.* :423, 1951) argue that hysterectomy is to be preferred to mple salpingectomy. They base this on the finding that 24% 200 patients subjected to salpingectomy later had disorders the uterus. These did not result from the sterilization but uld have been avoided had the protection been given by sterectomy.

They conclude: "In view of the very low mortality and mordity resulting from simple hysterectomy in the absence of disrtion of pelvic anatomy, it is our impression that hysterectomy ther than tubal interruption should be considered in those dividuals with chronic or progressive diseases warranting deruction of the reproductive function. Procedures short of ysterectomy preserve only the menstrual function of the uterus and leave an organ that is, as far as is known, not only worthless, but potentially dangerous."

Dissatisfied with the occasional failure of the Pomeroy and the Madlener methods of salpingectomy, Irving recommended (*Am. J. Obst. & Gynec.* 8:335, 1924) burying the tips of the uterine portions of the cut tubes in the myometrium. Recently (*Am. J. Obst. & Gynec.* 60:1101, 1950) he recorded 814 such operations by members of the Boston Lying-In staff with no failures. The article gives excellent diagrams of his technique.

The mortality of human sterilization has recently been discussed by Butler and Gamble (*Am. J. Obst. & Gynec.* 62:420, 1951). Five deaths, or one in 597, followed 2,984 salpingectomies of mentally deficient persons at the Sonoma State Home. Vasectomy of 2,439 resulted in no mortality. The loss of expected life is calculated to be 17 days for each patient protected. A lower mortality is anticipated in the future.

The accomplishments of sterilization are suggested by a calculation of the cost of keeping in institutions until 1950 the 25,903 mentally deficient persons sterilized under the eugenic laws of 29 states (*Am. J. Ment. Deficiency* 56:192, 1951). To do this would have required more than 336,000 patient-years and 117 million dollars. From the preinstitutional birth rates of those sterilized in New Hampshire and the proportion of their children found to be feebleminded, it was estimated that those sterilized in the 29 states would, if unprotected, have produced 19,000 mentally deficient children. Estimated costs and numbers of mentally deficient prevented are given for each state.



Sterilizations reported by state institutions in 1950, per 100,000 population.

Most laws for sterilization of the mentally deficient at governmental expense require a petition followed by consideration of the case by a hospital or eugenics board. A supplementary law in Indiana, passed in 1931 and improved in 1937, is commended by Harshman (*Am. J. Ment. Deficiency* 55:377, 1951) for its simplification of the necessary procedure. It requires the examining physician to decide whether sterilization is indicated for the welfare of the patient and of society. With this report as a guide, the committing judge may authorize protection from parenthood. Of the sterilizations recommended by the physician, 77% have been authorized by the judge.

Reports from Japan indicate that sterilization is being extensively employed. In 1950, 11,403 such operations were done under the Eugenic Protection Law (*Japan Planned Parenthood Quarterly* 2:5, 1951). Of these, 273 were compulsorily performed, 85 of them on males. Done at the discretion of the physician were 235 for eugenic reasons, 103 for leprosy, and 10,792 for health causes.

In the first six months of 1951, there were 7,487 sterilizations reported, an increase of 31% over the rate for 1950.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Rebates: Criteria for Illegality.—This was an action to restrain the defendants, five physicians and a layman, from violating the law regulating the practice of optometry. From a judgment in favor of the defendants, the plaintiff, State Board of Optometry, appealed to the Supreme Court of Arkansas.

Early in 1950 the defendant Keller and five oculists formed a partnership to engage in the wholesaling and retailing of optical supplies and the filling of prescriptions under the name of "The Medical Arts Optical Service." The partnership bought the property and equipment of American Optical Company in Hot Springs, with which Keller had been associated since 1932. The evidence shows, in relation to the operation of the partnership, that the examining oculist would determine any deficiencies in a patient's vision and note on a prescription the type and power of corrective lenses and facial measurements for the correct size of frames. The patient then would take the prescription to the Medical Arts Optical Service, or any other optician of his choice, to be filled. When taken to Medical Arts, Keller displayed different styles of frames to the patient and, where the physician or oculist had requested it, he, Keller, checked or verified the facial measurements. If he discovered what he conceived to be an error, he notified the oculist who, after rechecking, made any corrections necessary. This final decision always rested with the oculist or physician and not with Keller. After final instructions from the oculist, Keller had the lenses ground in accordance with the prescription and affixed to the frame style selected by the customer. All that remained to be done, after actual delivery to the patient, was to see that the glasses fit comfortably, which service Keller performed. In some cases, the bridge pinched or the nose hook needed adjusting, in which event Keller, by bending the offending parts, made it comfortable. The Supreme Court held that the above simple acts which Keller performed did not amount to the "dispensing and adapting of the glasses" and "lenses" within the meaning of the definition of optometry contained in the optometry law. The plaintiff board, however, contended that the defendants were violating the Unfair Practices Act and that the Chancellor who heard the testimony erred in refusing to allow the plaintiff to produce testimony on this issue.

The Unfair Practices Act provides "The secret payment or allowance of rebates, refunds, commissions, or unearned discounts, whether in the form of money or otherwise, or secretly extending to certain purchasers purchasing upon like terms and conditions, to the injury of a competitor and where such payment or allowance tends to destroy competition, is an unfair trade practice and any person, firm, partnership, corporation, or association resorting to such trade practice shall be deemed guilty of a misdemeanor and on conviction thereof shall be subject to the penalties set out in section 11."

The complaint, said the Supreme Court, does not allege that the rebates or "kickbacks" were "not extended to all purchasers purchasing upon like terms and conditions, to the injury of a competitor." In fact, the Supreme Court continued, the complaint in effect alleges the contrary. The partnership contract was made a part of the plaintiff's complaint and this agreement specifically provided that "the partnership shall maintain an establishment list of wholesale prices, subject to change from time to time, and shall charge a standard dispensing fee for filling prescriptions. Customers having prescriptions filled shall be charged a retail price to be established by agreement among the partners. The difference between the wholesale price plus dispensing fee and the retail price shall be credited to the oculist making the prescription. Such credit balance due oculists shall be paid by the partnership monthly. The privilege of participating in such retail profits shall be open to all licensed oculists and shall not be restricted to the partners." In construing this statute, the Supreme Court, in a prior case, said "But the regulatory law . . . not forbid all rebates, nor does it make illegal all agree for rebates. Before any agreement for a rebate can be sa violate the provisions of this act, such rebate must: First secret; second, not be paid to all patrons upon like terms conditions; and third, must tend to destroy competition. It volved upon appellee to show that all these requisites of gality existed." We hold, concluded the Supreme Court, that plaintiff board failed to state a cause of action against the fendants on this issue of rebates and therefore the Chanc did not err in refusing to hear testimony on this point. Acc ingly the judgment of the trial court denying the plaintiff's req for an injunction was affirmed.—*Arkansas State Boar Optometry v. Keller, 239 S.W. (2d) 14 (Arkansas, 1951).*

Workmen's Compensation Act: Employee's Right to Sue Malpractice.—The plaintiff sued to recover damages allege have resulted from the malpractice of the defendant physi From a judgment in favor of the defendant, the plaintiff app *to the Appellate Court of Illinois.*

The plaintiff sustained an injury in the course of his emp ment with the Pinckneyville Mining Company, for which made a settlement under the Workmen's Compensation Act to the filing of this action. The evidence showed clearly that the employer and the employee were operating under the visions of the Workmen's Compensation Act. The evid further showed that the defendant was also under and su to the Act. The defendant therefore moved for dismissal on ground that the plaintiff had no legal capacity to sue.

Section 29 of the Illinois Workmen's Compensation Act vides that where all the parties are under and subject to the the plaintiff employee has no right of action as against the n gent third party and his right of action is transferred to his ployer. It appears from the record that a compensable in under the Workmen's Compensation Act was alleged to been aggravated by the negligence of the physician of the ployer. Such aggravation, said the appellate court, was not a *injury* but was connected with and became a part of the ori injury. The employer is bound to pay under the Workm Compensation Act for the original injury and all additional bility caused by the malpractice under the authority of the determined in this State. It is therefore apparent from the ord *that* the plaintiff, plaintiff's employer, and defendant, all under the Workmen's Compensation Act and that Secti of this Act applies to the alleged malpractice of the defen Under said Section 29 the plaintiff's cause of action as ag defendant is transferred to the employer of the plaintiff, since the plaintiff did not have the legal capacity to sue, order of dismissal entered by the trial court was proper. Acc ingly the judgment of the trial court in favor of the defen physician was affirmed.—*Duvardo v. Moore, 98 N.E. (2d) (Illinois, 1951).*

MEDICAL MOTION PICTURE

Trick and Fancy Roping: 16 mm., color, sound, showing time 10 utes. Produced in 1951 by and procurable from Vernon J. Kral Productions, Milwaukee.

This film pictures the technic of plain and trick roping can be taught to children in schools and to patients in nee rehabilitative exercise. An important part of the film is dev to a demonstration of a simple way to make a rope for ropin is remarkable for the appealing way in which colorful out backgrounds and cheerful characters are used to engage attention of the audience. Human interest is added by the s of a victim of poliomyelitis who made roping his hobby; this gests many possibilities in educational and rehabilitative grams. It is recommended for nonprofessional audiences of age and for students of physical education and therap exercise.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Neurology and Psychiatry, Chicago

66:253-402 (Sept.) 1951

New Concept of Critical Steps in Course of Chronic Debilitating Neurologic Disease in Evaluation of Therapeutic Response: Longitudinal Study of Multiple Sclerosis by Quantitative Evaluation of Neurologic Involvement and Disability. L. Alexander.—p. 253.
*Inheritance of Manic-Depressive Psychosis. D. J. Merrell.—p. 272.
Psychoanalysis and Dynamic Psychiatry. M. Gitelson.—p. 280.
Supplementary Motor Area of Cerebral Cortex: Clinical and Experimental Study. W. Penfield and K. Welch.—p. 289.
Antidepressive Action of 5-(1,3-Dimethylbutyl)-5-Ethylbarbituric Acid. J. S. Gottlieb.—p. 318.
Central Nervous Action of Hydantoins, Oxazolidinediones and Thiazolidones. G. Chen, C. R. Ensor and I. G. Clarke.—p. 329.
Ophthalmoplegia Internuclearis Anterior Without Lesion of Posterior Longitudinal Bundle. M. J. Madonick.—p. 338.
Hereditary Spastic Paraplegia and Hereditary Ataxia: Family Demonstrating Variety of Phenotypic Manifestations. W. M. Landau and J. J. Gitt.—p. 346.
Patterns in Perception on Simultaneous Tests of Face and Hand. M. B. Bender, M. Fink and M. Green.—p. 355.
Capillaroscopic Studies in Cases of Multiple Sclerosis and Other Neuropsychiatric Disorders. N. Mutlu.—p. 363.

Inheritance of Manic Depressive Psychosis.—The role of heredity in the etiology of manic-depressive psychosis has often been investigated, but the results have given rise to a variety of interpretations. From annual reports of the Bureau of Census Merrell deduces that manic-depressive psychosis is less common than formerly. This may be explained by the tendency to define manic-depressive psychosis more narrowly, so that disorders formerly diagnosed as manic-depressive psychosis now appear to be classified as schizophrenic, or perhaps involutional, psychoses. Figures on discharges and readmissions confirm the cyclic nature of the psychosis. Evidence that women are more severely affected than men is to be found in the earlier age of onset and of first admission and in the greater proportion of affected women. Data on twins show conclusively that heredity is involved in the etiology of the psychosis. The high incidence among the relatives of persons with this psychosis and the difference in frequency of the psychosis in different populations are further evidence for the role of heredity. The frequency of the psychosis is about the same among the parents, sibs, fraternal twins, and children of patients with manic-depressive psychosis. The best genetic explanation for the data is that of a single autosomal dominant gene with incomplete penetrance.

A.M.A. Arch. Otolaryngology, Chicago

54:231-340 (Sept.) 1951

Influence of Fundamental Concepts in Allergy upon Specific Problems in Otolaryngology. F. L. Weille and A. B. Richards.—p. 231.
Malformations of Eustachian Tube, Middle Ear, and Its Appendages: Critical Review. F. Altmann.—p. 241.
Physical and Physiological Variables in Noise-Induced Hearing Loss. D. Wheeler.—p. 267.
Vocal-Cord Paralysis in Heart Disease. M. Plotz and M. J. Brooks. —p. 273.
*Prevention of Otitis in Swimmer. W. V. Hostelley.—p. 279.
Future of Otolaryngology: President's Address. S. L. Shapiro.—p. 304.

Prevention of Otitis in Swimmers.—When water enters the external ear canal in a swimmer it may produce external otitis, or if the tympanic membrane is perforated, otitis media. The following factors predispose to such infections: (1) man's lack of biological adaptation to an aquatic environment, i. e., his inability to close the external ear or nares to prevent entrance of water into the ear canal or middle ear, (2) the ability of water to remove the protective mantle of fatty acids from the skin of the canal with consequent elevation of the surface pH from the normal bacteriostatic level of 5.5, (3) irritation of the skin and mucous membranes by chemicals used for purification of the water, (4) the presence of bacteria or molds in the water or in the ear canal, (5) chilling of the body surface, which lowers resistance to the organisms present. Water may be prevented from coming in contact with the nasal mucous membranes and from thence with the middle ear by a proper method of breathing and by use of a nasal clip. It can be excluded from the ear canal by the use of ear plugs made from nonabsorbent cotton, i. e., a form of cotton that has been sterilized but from which the oil has not been removed. It is water-repellent and forms an efficient, nontraumatic cork in the ear canal against the entrance of water. If about four drops of a 25% m-cresylacetate-chloroazodin solution (one part of m-cresylacetate to three parts of chloroazodin in glyceryl triacetate) is placed into each ear and a tight warm plug of nonabsorbent cotton that conforms to the shape of the ear canal is inserted, the result is both a protection against cold water coming into contact with the canal or middle ear and an oily antiseptic, which guards the skin and tends to kill any offending organism that might be activated by the water or brought into the ear in the water. Six cases are reported in which this method proved highly effective. One part m-cresylacetate was used in cases of a mild nature or when the solution was to be used frequently for swimming over short periods of time. Two parts m-cresylacetate were used in the severer infections or when the solution was not to be used too often.

American Journal of Medical Sciences, Philadelphia

222:243-364 (Sept.) 1951

*Synergistic Action of Para-Aminobenzoic Acid and Cortisone in Treatment of Rheumatoid Arthritis. L. L. Wiesel, A. S. Barritt and W. M. Stumpe.—p. 243.
Acute Nonspecific Pericarditis. E. W. Gilley, M. C. McCord and J. T. Taguchi.—p. 249.
Relation of Kidney to Acute Pressor Action of Desoxycorticosterone. M. L. Goldman, J. T. Kriss, H. A. Schroeder and D. F. Davies. —p. 257.
Significance of QT Prolongation in Electrocardiogram: Based on Study of 168 Cases. S. Bellet and D. Finkelstein.—p. 263.
Thrombin-Inhibitory Effect of Certain Thromboplastin Preparations. R. C. Hartmann.—p. 279.
Studies on Chloramphenicol in Treatment of Typhoid Fever. P. T. Lantin, E. L. Gamboa and F. Sadili.—p. 285.
*Recovery of Virus from Regional Lymph Nodes of Fatal Human Cases of Poliomyelitis. H. A. Wenner and E. F. Rabe.—p. 292.
Pathogenesis of Muscle Necrosis Due to Experimental Local Cold Injury. R. B. Lewis.—p. 300.
Response of Patients with Malignant and Benign Pemphigus to Adrenocorticotropic Hormone and Cortisone. C. N. Frazier, W. F. Lever and C. S. Keuper.—p. 308.
Fibrous Displasia of Bones. J. E. Pritchard.—p. 313.
Whooping Cough and Its Epidemiological Anomalies. J. E. Gordon and R. I. Hood.—p. 333.

Synergistic Action of *p*-Aminobenzoic Acid and Cortisone in Rheumatoid Arthritis.—The fact that the inactivation of estrogenic hormones by the liver is inhibited by the addition of *p*-aminobenzoic acid, the great similarity in structure of cortisone and the estrogens, and the fact that the major portion of parenterally administered cortisone is inactivated in the body suggested the possibility of inhibiting the destruction of cortisone by the simultaneous administration of *p*-aminobenzoic acid. The 15 patients treated by this method all had rheumatoid arthritis that had proved refractory to other treatment. In the first of the two methods used, patients received full dosage schedules of cortisone acetate until maximum relief of arthritis was obtained, usually for one week, after which the daily intramuscular dose of cortisone was reduced to 25 mg. With this dose, all patients relapsed within a short time. Then the sodium salt of *p*-aminobenzoic acid was given orally in doses of 1.5 gm. every two

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An asterisk (*) before a title indicates that the article is abstracted.

hours during the waking period for a total of eight doses, or 12 gm. per day, in addition to the single daily intramuscular injection of 25 mg. of cortisone acetate. When the arthritic manifestations had again been relieved, for variable periods of time, control tests were made by the substitution of a placebo for the cortisone. In the second method, patients were given from the start the combination of cortisone acetate and sodium *p*-aminobenzoate. The results obtained with these two methods were comparable with those obtained by administration of much larger doses of cortisone alone, with the additional advantage of a reduction in side reactions. The additive or synergistic action of these two compounds warrants further and more extensive use of this method in rheumatoid arthritis.

Virus in Regional Lymph Nodes in Poliomyelitis.—A review of previous studies indicates that poliomyelitis virus can be found only irregularly in the regional lymph nodes. The authors of this report performed necropsies on nine patients who died of poliomyelitis and found the virus in the lymph nodes in six. The right axillary lymph nodes were positive in two individuals, the left axillary lymph nodes in three, the right inguinal lymph nodes in two, and the left inguinal lymph nodes in two. Poliomyelitis virus was found once in mesenteric lymph nodes. The pancreatic tissues obtained in these nine cases did not contain detectable amounts of poliomyelitis virus. It is assumed that, during the invasive period, poliomyelitis virus extends from the gastrointestinal tract into lymphatic channels, with outflow into the blood stream and interstitial tissue spaces. From these compartments virus is transported to lymph nodes, where it may be detectable for a period after the stage of viremia.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

66:341-520 (Sept.) 1951

Superior Vena Cava and Innominate Veins: Angiocardiographic Study. D. J. Roberts Jr., C. T. Dotter and I. Steinberg.—p. 341.
Normally Situated Arch of Azygos Vein: Its Roentgenologic Identification and Catheterization. H. M. Stauffer, J. LaBree and F. H. Adams. —p. 353.
Roentgenographic Features of Slipped Capital Femoral Epiphysis. A. Klein, R. J. Joplin, J. A. Reidy and J. Hanelin.—p. 361.
Roentgenological Identification of Victims of the "Noronic" Disaster. A. C. Singleton.—p. 375.
is Pubis and Its Treatment by Roentgen Irradiation. T. Leucutia. . 385.
alignant Testicular Tumors: Clinical and Therapeutic Evaluation of 158 Cases. G. Kaplan, B. B. Cohen and B. Roswit.—p. 405.
Reaction of Tissues of Amphibians After Local Roentgen Irradiation. V. V. Brunst, D. J. Barnett and F. H. J. Figge.—p. 420.
Training of Residents in Radiology. B. R. Kirklin.—p. 435.
Training of Residents in Roentgen Diagnosis. L. G. Rigler.—p. 438.
Residency Training in Clinical Therapeutic Radiology. D. Quick.—p. 447.
Teaching of Radiological Physics as Part of Training in Radiology. E. H. Quimby.—p. 453.

Osteitis Pubis.—Osteitis pubis is a distinct clinical entity characterized by self-limiting, nonsuppurative osteonecrosis, which usually begins at the symphysis and extends to the pubic bones or, in the severer cases, as far posteriorly as the ischial tuberosities. Of the 116 cases listed in literature, 33 were reported from 1924 to 1946, while 83 were reported from 1947 to 1950. To these, four personal cases were added by the author. The recent sudden increase in the number of cases must be attributed to a better diagnostic evaluation and especially an intensified search for osteitis pubis, which is to be considered as a potential postoperative complication of urological surgical intervention. Osteitis pubis occurred as an aftermath of suprapubic prostatectomy in 68 of the 116 reported cases and as a complication of retropubic prostatectomy in 29. It was observed in only seven cases of transurethral prostatectomy and rarely after other operations in which the bladder was opened suprapubically. It is not presumed to follow uncomplicated perineal prostatectomy. The cases in which osteitis pubis was reported secondary to nonurological surgical intervention, such as herniorrhaphy or symphysiotomy, were nearly all cases of frank osteomyelitis or osteitis pubis complicated by osteomyelitis. The two outstanding criteria of differentiation from osteomyelitis pubis are fever and sequestration, both of which are present in osteomyelitis and absent in osteitis. Occasional cases of osteitis pubis have also been described following external trauma to the pubic region, pyelonephritis, and other nonsurgical causes. Its clinical features are excruciating pain, tetanic contractions of the muscles that pull on the involved portions of the bone, and in many instances complete disability lasting for many months. The roentg logic features differ according to whether the disease is in prodromal, destructive, or regenerative stage. The appear is characteristic and constitutes the most important objec sign in establishing a correct diagnosis. The prognosis of ost pubis is invariably good. There is no mortality, and the he is complete. In the five presumably fatal cases listed in lit ture it is more probable that death resulted from the se infection, which arose from some other source than the ost pubis. Treatment is symptomatic and supportive. Its aim alleviate the pain and to shorten the self-limited clinical co Roentgen therapy, either alone or in combination with methods, accomplishes both. The author recommends that doses of 75 to 100 r be given at triweekly intervals with 20 1 mm. Cu, until the acute symptoms have subsided, an gradually spaced intervals thereafter. A complete reossific of the bone occurs within one to two years.

Malignant Testicular Tumors.—During the 15 year peri 1933 to 1948, a total of 158 patients with malignant testi tumor were treated and observed in the radiation therap partment at the Veterans Hospital, Bronx, New York. O 158 patients, 58 had seminoma, 58 embryonal carcinom teratocarcinoma, and 10 choriocarcinoma. Of the rem eight, there were two with reticulum cell sarcoma, one lymphosarcoma, one with rhabdomyosarcoma, and fo whom the diagnosis was undetermined, because preope irradiation obscured the histopathological picture. All th tients were white, although 12% of the hospital populatio Negro. All but 1 of the 158 patients were treated by su removal of the diseased testicle followed by deep roe therapy to the regional lymph nodes in the abdomen. Rad therapy was given whether or not there was clinical evi of metastases to the abdominal lymph nodes. In cases of noma, as a rule a tumor dose of about 2,000 r was delive the lymph node areas in the abdomen. There were wide tions in the irradiation response of seminoma, ranging complete regression following small doses to persistenc recurrence of the malignant tumor despite intensive irrad therapy. Some radioresistant seminomas may not respo tumor doses appreciably higher than 2,000 r. In other pathological types the tumor dose was approximately 3, The highest percentage of three-year survival periods achieved in the seminoma group. The percentage of thre survival periods in histopathological types other than semi was greatest in the embryonal carcinomas, less in the tera cinomas, and least in the choriocarcinomas. In each pathological group the presence or absence of clinical meta was important in the prognosis. In seminoma it was noted of 22 patients who had no clinical evidence of metastas survived the three year period. Of 27 patients in the other g who had no clinical metastases when first seen, 18 surviv three year period. All of the deaths occurred within th three years following treatment. Hence, the chance of cont survival is excellent after the three year period.

American Review of Tuberculosis, New York

64:225-326 (Sept.) 1951

*Evaluation of Role of Serial Chest Roentgenograms in Esti Progress of Disease in Patients with Pulmonary Tuberculosis. J. halmy, L. H. Garland, J. T. Harkness and others.—p. 225.
Clinical Importance of Lesions Undetected in Mass Radiographic of Chest. H. B. Zwerling, E. R. Miller, J. T. Harkness and J. halmy.—p. 249.
Analysis of Ventilatory Defect by Timed Capacity Measurements. Gaensler.—p. 256.
Some Effects of Adrenocorticotropic Hormone and Cortisone on monary Function of Patients with Obstructive Emphysema. D. S. —p. 279.
*Evolution of Tuberculous Lesions in Guinea Pig During Adminis of Adrenocorticotropic Hormone (ACTH) or Cortisone. C. LeM and R. Tompsett.—p. 295.
Disappearance of Tubercle Bacilli from Sputum Following Thoraco R. T. Polack and W. F. Fidler.—p. 307.

Interpretation of Serial Chest Roentgenograms in Pulmo Tuberculosis.—Because of the assumption that it is possib assess with a great degree of reliability the "activity" of a l from a comparison of two or more roentgenograms o chest obtained at appropriate intervals, 150 pairs of 14 b inch films of the chest of 150 patients with pulmonary tuberculosis, taken approximately three months apart, were studied. These two single posteroanterior roentgenograms of the chest were interpreted independently twice by each of three radiologists and three phthisiologists of considerable experience in their respective specialties. The main observation was that in judging a pair of films for evidence of progression, regression, or stability of disease in patients with pulmonary tuberculosis, two readers are likely to disagree with each other in almost one-third of the cases, and a single reader is likely to contradict himself in approximately one-fifth of the cases. A significant but relatively small part of the error in film interpretation results from variations in technical factors. Disagreements in serial film interpretations are not due chiefly to contradictory evidence produced by the two lungs in film pairs. On the contrary, a reader disagrees with himself or with another reader almost as often in evaluating changes in a unilateral as in a bilateral lesion. When a reader compares a pair of roentgenograms and classes one as more abnormal than the other, the chances are that in approximately 10% of the cases another reader will make the opposite interpretation; and the same reader is likely to completely reverse his original diagnosis in approximately 7% of readings of the same pairs of films. Results to be expected when two readers interpret a set of 100 film pairs and when the set is interpreted independently twice by the same reader are summarized. The inconsistencies in roentgenographic interpretations revealed by the authors' studies do not mean that roentgenograms are not useful, but they must not be taken as the sole criterion of the patient's progress, nor should clinical decisions rest on them alone. Additional procedures, such as multiple projections and fluoroscopies, may add to the reliability of roentgenographic evaluation, and physical examination and bacteriologic studies will reduce wrong diagnoses or prognoses.

Corticotropin and Cortisone in Guinea Pigs with Experimental Tuberculous Infection.—Excessively large amounts of corticotropin (ACTH) or cortisone were administered subcutaneously to two groups of albino guinea pigs. Forty-eight hours after the administration of the drugs was started each animal was infected subcutaneously over the sternum with an inoculum of virulent Mycobacterium tuberculosis. Drug administration was continued in one group of guinea pigs for 14 days and in the other group for 28 days, at which time all surviving animals were killed and necropsy was performed. The effects of corticotropin and cortisone were most evident in the experimental infection of 14 days' duration. The characteristics of the nodule at the inoculation site were definitely altered. Formation of such a nodule was noted, however, in only one-half of the cortisone-treated animals, whereas a nodule formed in all of the animals that received corticotropin. Demonstrable involvement of the various organs by the tuberculous process was less frequent in the animals given cortisone or corticotropin than in the control animals, which received only isotonic sodium chloride solution. The effects of corticotropin or cortisone were less pronounced in the infection of 28 days' duration. In the longer experiment the formation of a nodule containing caseation necrosis occurred in all animals, irrespective of the substance administered. The extent of the tuberculous process in all animals was approximately the same. Significant differences in the animals given cortisone, corticotropin or isotonic sodium chloride solution, in terms of the number of acid-fast bacilli present in the lesions, were not demonstrable on microscopic examination of the tissues. During the periods in which excessively large amounts of corticotropin or cortisone were administered, evidence of enhancement of the experimental tuberculous process induced by cortisone or corticotropin was not obtained.

Arizona Medicine, Phoenix

8:1-84 (Sept.) 1951

*Clinical Application of Cortisone and ACTH in Arthritis and Related Conditions: Methods and Problems. Part II: Side-Effects, Complications, Contraindications, Precautions and Conclusions. O. Steinbrocker, M. E. Ehrlich, M. Silver and others.—p. 29.

Side-Effects of Corticotropin and Cortisone in Arthritis.—Of 140 patients, 72 with rheumatoid arthritis, 27 with rheumatoid-like articular diseases, and 41 with nonrheumatoid musculoskeletal conditions, treated with cortisone and corticotropin (ACTH), in somewhat less than one-third side-effects or untoward reactions developed. Approximately 90% of these side-effects were temporary, quickly reversible on discontinuance of therapy, or of no clinical importance. Glycosuria occurred in 18 patients, edema in 16, and rounding of facial and body contours in 12. Cutaneous side-effects, occurring in 30 patients, included hirsutism, acneform lesions, erythematous eruptions, and purpuric eruptions. Psychic disturbances appeared in 24 patients. Untoward cardiovascular and peripheral vascular manifestations were observed in 15 patients, all but 1 between the ages of 60 and 80. In seven patients thrombophlebitis developed. Six patients exhibited signs and symptoms of a variety of neuropathies. Decalcification of bone or aggravation of preexisting osteoporosis led to a compression fracture of the 11th dorsal vertebra in one patient and to a fracture of the surgical neck of the humerus in another. The vascular complications, the fractures, the psychoses, and the neuropathies were the most troublesome and necessitated interruption of treatment oftenest. The wide variety of actions of cortisone and of corticotropin other than the useful therapeutic effects makes it necessary to administer them with caution. Hospitalization is recommended for the initial period and is imperative for elderly patients and those with coincidental disease. The presence of relative contraindications to the use of these compounds must be weighed carefully against their expected benefit in each case. A balanced final appraisal of their role as practical therapeutic agents, particularly in relation to long-term administration in chronic, musculoskeletal disease, must await further data on the range of clinical effects and possible pathological changes produced by these substances in larger groups of patients during longer periods of observation.

Diseases of Chest, Chicago

20:237-346 (Sept.) 1951

*Early Diagnosis of Primary Lung Cancer by Cytologic Methods. S. M. Farber, A. K. McGrath Jr., M. A. Benioff and L. W. Espen.—p. 237.

*Carcinoma of Lung: Duration of Life of Individuals Not Treated Surgically. A. Buchberg, R. Lubliner and E. H. Rubin.—p. 257.

False Positive Bacteriological Reports in Diseases Simulating Pulmonary Tuberculosis. D. Steinberg, P. C. Holzberger and G. Schwartz.—p. 277.

Cor Pulmonale: Report of Additional 52 Cases Compared with Previous Study of 50 Cases. H. A. Zimmerman and J. M. Ryan.—p. 286.

Diagnosis and Treatment of Carcinoma of Esophagus. P. Thorek.—p. 290.

Simple Method for Differential Block-Inflation in Anesthesia for Lung Surgery. S. Albert.—p. 304.

Tuberculous Tracheobronchitis: Review of 100 Cases. J. E. Hiltz, D. M. MacRae and J. J. Quinlan.—p. 313.

Further Studies on Control of Vestibular Toxic Effects of Streptomycin by Dramamine. L. L. Titche and A. Nady.—p. 324.

Spontaneous Pneumothorax Due to Diaphragmatic Defect Complicating Pneumoperitoneum Therapy: Report of Case. I. Epstein.—p. 327.

Early Diagnosis of Primary Lung Cancer.—Cytological studies were made of 6,281 specimens of sputum or bronchial secretion obtained from 2,066 patients with chest diseases in whom malignancy was suspected. Of the 2,066 patients, 1,208 had benign chest disease, but in many of these patients the clinical picture of lung carcinoma was simulated by the benign pulmonary conditions. Of the 858 patients with malignant chest diseases, 241 had pathologically proved bronchogenic carcinoma. A positive cytological diagnosis was made in 55% of these patients. When five or more sputum specimens were studied, an accuracy of 90% was reached. At the same time only two false positive diagnoses were made in the first 500 patients studied. In 113 (47%) of the 241 patients with pathologically proved bronchogenic carcinoma, cytological diagnosis was the first procedure to establish a morphological diagnosis; in 111 patients (46%) the positive cytological diagnosis coincided with other ordinary methods in establishing a morphological diagnosis; and in only 17 patients (7%) the positive cytological diagnosis was reported after diagnosis had been established by another pathological method. In these 241 patients a positive cytological diagnosis thus was made oftener and sooner than other morphological diagnoses. The authors believe that earlier diagnoses of cancer of the lungs will be made when cytological techniques are immediately applied to all patients suspected of having carcinoma, to patients with equivocal lung lesions detected by routine roentgen surveys, and as a routine screening procedure to selected patients with cough and sputum.

Survival Period of Patients with Lung Cancer.—Of 443 patients with microscopically proved bronchiogenic carcinoma not operated on, 373 (84.2%) died within two years of the onset of striking symptoms. The remaining 70 (15.8%) lived from two to seven and a half years. This group included 18 who lived three to five years and 7 who lived five years or longer. An additional patient is reported who lived more than 17 years from the time the diagnosis of carcinoma was made. Microscopic studies of sections obtained from 320 patients on whom necropsy was performed showed that the average length of life was longest (14.1 months) in 122 patients with epidermoid carcinoma and shortest (11.4 months) in 72 patients with anaplastic carcinoma, while 126 patients with adenocarcinoma occupied an intermediate position, with a survival period of 13.6 months. As a clinical corollary of this study, and on the basis of an analysis of the results of surgical treatment in 1,251 patients reported from 10 large centers of the United States and England, it is concluded that resectional surgery should be restricted to patients in good physical condition in whom the disease has been detected in a relatively early stage. Surgery is contraindicated in patients with advanced bronchiogenic carcinoma because of the considerable operative risk and the discouragingly poor results. Such patients should not be subjected to surgical intervention on the principle that nothing is lost by the attempt since death is a matter of a few months in any event. The authors' observations in the 443 patients not treated surgically revealed that an appreciable number of patients with bronchiogenic carcinoma lived two years or longer without surgical treatment.

GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

4:1-208 (Sept.) 1951

Varicose Veins. S. A. Eger and F. B. Wagner Jr.—p. 32.
Surgery in Pediatrics. A. A. Schaefer.—p. 41.
What to Know About Drug Addiction. H. Isbell.—p. 45.
Squints in Children. W. H. Fink.—p. 53.
Obstetric Anesthesia. J. S. Lundy and E. A. Banner.—p. 63.
Advantages of Microthermy. E. Matlin.—p. 67.
Management of Glomerulonephritis. H. A. Lindberg.—p. 70.

owa State Medical Society Journal, Des Moines

41:381-412 (Sept.) 1951

Severe Injuries to Hand. W. C. Graham.—p. 381.
Serious Ankle Fractures. R. M. Wray.—p. 383.
Problems in Management of Diabetes Mellitus. T. L. Carr.—p. 388.
Present Status of Psychiatry in Iowa. W. R. Miller.—p. 392.

Journal of Experimental Medicine, New York

94:171-274 (Sept.) 1951

Electron Microscope Study of Red Cell Membranes After Experimental Infection with Virus of Foot-and-Mouth Disease. B. Epstein, N. M. Fonseca and E. De Robertis.—p. 171.
First Two Steps of Invasion of Host Cells by Bacterial Viruses. II. A. Garen and T. T. Puck.—p. 177.
Mechanism of Production of Pulmonary Lesions in Mice by Newcastle Disease Virus (NDV). H. S. Ginsberg.—p. 191.
*Half-Life of Passively Acquired Antibody Globulin Molecules in Infants. A. S. Wiener.—p. 213.
Anemia Plus Hypoproteinemia in Dogs: Various Proteins in Diet Show Various Patterns in Blood Protein Production. G. H. Whipple and F. S. Robscheit-Robbins.—p. 223.
Inhibition of Escherichia Coli by *p*-Aminobenzoic Acid and Its Reversal by *p*-Hydroxybenzoic Acid. B. D. Davis.—p. 243.
Observations with Electron Microscope on Solvation and Reconstitution of Collagen. P. Vanamee and K. R. Porter.—p. 255.

Half-Life of Passively Acquired Antibody Globulin Molecules in Infants.—In this study on the half-life of the antibody molecule in man, Wiener took advantage of a situation existing in certain cases of isosensitization in pregnancy. When a sensitized Rh-negative woman carries an Rh-negative fetus, the Rh' antibodies in her circulation pass through the placenta into the fetus until an equilibrium exists between the two circulations, so that when the baby is born its plasma contains Rh' antibodies equal in titer to the "univalent" Rh antibodies in the maternal plasma. From the curve of elimination of the Rh antibodies in the newborn baby's plasma, it should be possible to estimate the half-life of the Rh antibody molecule in the baby's body. By following the titer of passively acquired Rh antibodies in newborn infants, the author calculated that the half-life of the placenta-passing Rh antibody molecule is approximately 30 days. Evidence is offered that this estimate applies not only to placenta-passing Rh antibodies, but also to other placenta-passing antibodies, and not improbably to serum gamma globulin molecules in general. Studies on the fate of free Rh antibodies in erythroblastotic babies show that these antibodies often are eliminated no more rapidly in Rh-positive babies than in Rh-negative babies. On the other hand, incompatible alpha and beta antibodies, as a rule, are quickly neutralized and eliminated from the body of newborn infants. These observations provide one explanation for the lower incidence of erythroblastosis due to A-B sensitization in comparison with cases resulting from Rh sensitization.

Journal of Immunology, Baltimore

67:1-92 (July) 1951

Studies on Immunization of Guinea Pigs and Mice to Brucella Infecti by Means of "Native Antigen." S. Elberg, M. Herzberg, P. Schneider and others.—p. 1.
Zone of Localization of Antibodies: XI. In Vivo Purification of Kidney-Localizing Anti-Kidney Antibody. D. Pressman and B. Sherman.—p. 15.
Id.: XII. Immunological Specificities and Cross Reactions in Vascular Beds of Liver, Kidney and Lung. D. Pressman and B. Sherman.—p. 21.
Heterologous Strain Immunity in Experimental Syphilis. H. J. Magnuson and F. A. Thompson Jr.—p. 35.
Relationship Between Treponemal Immobilizing Antibodies and Acquired Immunity in Experimental Syphilis. H. J. Magnuson, F. A. Thompson Jr. and C. P. McLeod.—p. 41.
Serological Group II of Proteolytic Clostridia. J. W. Mandia.—p. 49.
Effect of Antilymphocytic Serum on Circulating Antibody Levels. M. F. A. Woodruff, B. Forman and K. B. Fraser.—p. 57.
Changes in Properties of Coagulase-Reacting Factor of Plasma Alte Separation from Prothrombin by Seitz Filtration. M. Tager and A. I Lodge.—p. 63.
Surface Phagocytosis in Vivo. M. R. Smith, W. D. Perry, J. W. Berr and W. B. Wood Jr.—p. 71.
Purification and Concentration of Mouse Encephalomyelitis Virus l Hemagglutination. O. Lahelle and T. G. Ward.—p. 75.
Alternate Passage of Influenza Virus: Comparison of Effects of Ser Passage and Alternate Passage of Type B Influenza Virus in Hamste F. M. Davenport.—p. 83.

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Studies on Specific Soluble Protein of Pasteurella Pestis and All Organisms: I. Isolation, Fractionation and Certain Physical, Chem and Serological Properties. S. C. Seal.—p. 93.
Antigenic Composition of Cryptococcus Neoformans: II. Serol Studies with Capsular Polysaccharide. E. E. Evans and J. F. Ke —p. 109.
Factors Influencing Agglutination Titration in Human Brucellosis. I Finberg and G. G. Wright.—p. 115.
Metabolic Studies of Rickettsiae: I. Effects of Antimicrobial Substa *and Enzyme Inhibitors on Oxidation of Glutamate by Purified* I ettsiae. C. L. Wisseman Jr., E. B. Jackson, F. E. Hahn and ot —p. 123.
Effect of BCG Vaccination and Chemotherapy on Experimental T culosis in Mice. C. O. Siebenmann.—p. 137.
Size of Coxsackie Viruses and Lansing Poliomyelitis Virus Detern by Sedimentation and Ultrafiltration. J. L. Melnick, M. Rhia Warren and S. S. Breese Jr.—p. 151.

Journal of Infectious Diseases, Chicago

89:1-106 (July-Aug.) 1951. Partial Index

Active Immunization of Birds Against Malaria. G. S. Coffin.—p. 1.
Distribution of Sparing and Protective Factors in Plasma Fracti Ducks Recovered from Lophurae Malaria. E. R. Becker, Schwink and C. E. Brodine.—p. 16.
Effect of Cortisone Acetate on Experimental Purulent Infectious A of White Mice. H. Friedlander.—p. 26.
Coproagglutinins in Ulcerative Colitis. W. L. Barksdale, A. Gho K. Okabe.—p. 47.
Effects of Brucellergen Skin Test on Brucella Agglutinin Titer in l with Brucellosis and Other Diseases. H. S. Krakauer, R. Rachm E. Neter.—p. 56.
Action of Some Water-Soluble Carcinogens on Bacteria. A. —p. 59.
Studies on Pathology and Pathogenesis of Experimental Brucell Comparison of Pathogenicity of Brucella Abortus, Brucella Me and Brucella Suis for Guinea Pigs. A. I. Braude.—p. 76.
Hemagglutinin-Inhibiting Property of Duck Plasma Exhibited in tination Reactions Involving Duck Erythrocytes and Plasma of Recovered from Lophurae Malaria. E. R. Becker, T. M. Schw R. M. Prather Jr.—p. 95.
Ineffectiveness of Cortisone Therapy in Mice Infected with Jap Encephalitis and Adverse Effect of High Doses. E. P. Voll H. S. Hurlbut.—p. 103.

ournal Nat. Cancer Inst., Washington, D. C.

11:1081-1324 (June) 1951. Partial Index

Diagnosis of Unsuspected Cancer of Cervix. R. B. Nelson and A. W. *Hilberg.—p.* 1081.
Effect of Thyroxine on Lymphoid-Tissue Mass of Immature Female Mice. S. N. Marder.—p. 1153.
Histopathogenesis of Pulmonary Tumors Induced in Strain A Mice by Urethan. F. K. Mostofi and C. D. Larsen.—p. 1187.
Observations on Cultivation of Surgical Specimens of Human Ovaries in Vitro. G. G. Rose, F. M. Townsend and C. M. Pomerat.—p. 1223.
Studies on "Cytotoxic" Property of Mammary Tumor Agent Antiserum. L. W. Law and R. A. Malmgren.—p. 1259.
Method of Estimating Comparative Rates from Clinical Data: Applications to Cancer of Lung, Breast, and Cervix. J. Cornfield.—p. 1269.
Serologic Study of Microsome Fraction of Normal and Neoplastic Mouse Tissues. R. A. Malmgren, B. E. Bennison, B. F. Anderson and C. C. Risley.—p. 1277.
Action of Tissue Extracts on Cell Division. L. V. Heilbrunn, W. L. Wilson and D. Harding.—p. 1287.

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52:421-472 (Sept.) 1951

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ebraska State Medical Journal, Lincoln

36:281-312 (Sept.) 1951

he Medical Schools and the Doctors. R. G. Gustavson.—p. 283.
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ew England Journal of Medicine, Boston

245:317-350 (Aug. 30) 1951

ecurrence of Vasoconstrictor Activity After Limb Sympathectomy in Raynaud's Disease and Allied Vasomotor States. C. W. Robertson and R. H. Smithwick.—p. 317.
alcification of Vas Deferens: Its Relation to Diabetes Mellitus and Arteriosclerosis. J. L. Wilson and J. H. Marks.—p. 321.
linical Appraisal of Hexamethonium (C_6) in Peripheral Vascular Diseases. F. A. Finnerty Jr. and E. D. Freis.—p. 325.
teatorrhea Following Use of Antibiotics. R. R. Merliss and A. Hoffman. —p. 328.
ledical Uses of Ion-Exchange Resins. W. P. Arnold Jr.—p. 331.

examethonium in Peripheral Vascular Diseases.—Because of e ganglion-blocking action of hexamethonium, it seemed stified to investigate the effects of this drug in patients with ripheral vascular diseases. The 29 patients in whom Finnerty d Freis used hexamethonium included 2 with arterial emolism, 1 with primary arterial thrombosis, 3 with Buerger's disse, 2 with Raynaud's phenomenon, 1 with causalgia, 5 with teriosclerosis obliterans, and 16 with thrombophlebitis. All ere hospitalized during treatment. The authors concluded that examethonium is approximately as effective as paravertebral mpathetic block. The advantages of hexamethonium were its se of administration and extreme potency, permitting more or ss continuous inhibition of neurogenic vasospasm for long eriods. Its disadvantages were the development of hypotension, specially in the erect position, and constipation in a few cases.

teatorrhea Following Use of Antibiotics.—Since the antiiotics aureomycin, chloramphenicol, and terramycin influence wide range of bacteria, are effective orally, and are reputed o be without serious toxicity, they have been widely used. t is now realized, however, that they may produce black tongue, aginitis, pruritus ani, and proctitis. More recently, prolonged liarrhea and pulmonary disease have been observed. The four ases reported in this paper and four previously reported cases stablish an etiological relation between prolonged diarrhea and he administration of antibiotics. Chloramphenicol, aureomycin, erramycin, and penicillin-sulfonamide combinations are the drugs chiefly responsible for this form of diarrhea, which seems to originate in the small bowel. The presence of fat in the stools, the tendency of the diarrhea to be aggravated by fat ingestion, and the relatively mild nature of the diarrhea are features that are commonly seen in steatorrhea from small-bowel dysfunction. Moreover, in 13 cases x-ray findings pointed to the small bowel as the source of the diarrhea, which closely resembles the diarrhea of the sprue syndrome. It is probably due to a deficiency state secondary to the destruction of the normal intestinal flora. The diarrhea responds readily to parenterally administered liver in conjunction with ingestion of B vitamins.

Ohio State Medical Journal, Columbus

47:801-896 (Sept.) 1951

Report of Death from Bronchial Asthma During Cortisone Therapy. A. R. Zoss and R. Zodikoff.—p. 825.
Myeloid Metaplasia: Case Report and Brief Review of Literature. E. Wasserman.—p. 828.
**Anterior Poliomyelitis in Pregnancy. W. Brehm.—p. 830.*
Co-Existing Hydatidiform Mole, Living Child and Placenta Praevia. R. V. Beltz and C. L. Hutchins.—p. 832.
Primary Carcinoma of Fallopian Tube: Report of Case. C. R. Jablonski. —p. 834.
Glaucoma. L. V. Kogut.—p. 837.
Practical Aspects of Potassium Therapy in Surgical Patient. E. H. Ellison, T. W. Morgan and R. M. Zollinger.—p. 839.
Surgical Approach to Control of Epilepsy. O. P. Kimball.—p. 842.

Anterior Poliomyelitis in Pregnancy.—Brehm reports the histories of two patients in whom poliomyelitis developed during pregnancy. The first woman, who had poliomyelitis in July, carried her infant to term in November. The second woman had a premature delivery in the sixth month of pregnancy during the attack of poliomyelitis. Pregnancy does not seem to have any influence on the severity of the disease or the residual paralysis. The degree of spinal paralysis has no serious effect on labor. The lack of voluntary muscular effort does not contraindicate vaginal delivery. Cesarean operation has probably been employed oftener than necessary. There is no reason to terminate the pregnancy prior to term except for indications other than the poliomyelitis. The general consensus that pregnancy increases the susceptibility to poliomyelitis is difficult to reconcile with the fact that the blood levels of estrogen and progesterone are high, which supposedly provides a protection against this virus; on the other hand, pregnancy probably increases the permeability of the upper respiratory tract and produces chronic fatigue. No cases of congenital poliomyelitis have been reported.

Radiology, Syracuse, N. Y.

57:157-304 (Aug.) 1951

Physical and Clinical Aspects of Supervoltage Rotational Therapy. H. F. Hare, S. W. Lippincott Jr., D. Sawyer and others.—p. 157.
Value of Cross-Section Diagrams in Delivering Accurate X-Ray Therapy into Female Pelvis. J. Love, G. N. Combs, W. A. Askew and M. Harcourt.—p. 169.
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Herniation of Lung in Cervical Region. H. A. Reinhart and M. B. Hermel.—p. 204.
Recumbent Esophagogram: X-Ray Method for Early Detection of Left Atrial Enlargement. S. Schorr, F. Dreyfuss and A. Schwartz.—p. 208.
Perforation of Duodenal Ulcer During Fluoroscopy: Disposition of Barium Sulfate in Abdominal Cavity. R. S. Hayden.—p. 214.
Importance of Relation Between Anthropometric Index and Transverse Cardiac Diameter for Appraising Size of Heart. G. Esguerra Gómez. —p. 217.
*Studies with Radioiodine: II. Treatment of Patients with Hyperthyroidism by I^{131}. E. R. Miller, M. E. Dailey, M. H. Soley and others. —p. 227.
Determination of Tissue Dosage. F. Hutchinson.—p. 234.
Selection of Optimum Kilovoltage for Dental Radiography: I. Preliminary Studies. A. H. Wuehrmann and C. J. Monacelli.—p. 240.
New Film Projector for Full-Sized Original Roentgenograms. E. Gordon and J. J. Schwartzman.—p. 248.
Radiation Doses from Diagnostic X-Ray Studies. J. S. Handloser and R. A. Love.—p. 252.

Radioiodine in Treatment of Hyperthyroidism.—This is a report on the first 100 consecutive patients to whom radioactive iodine (I^{131}) was given for the treatment of hyperthyroidism at the University of California School of Medicine, San Francisco, since 1945. Patients with nodular goiters and those who were pregnant were not accepted for this form of treatment. As the first step in treatment a test dose of I^{131}, usually 100 μc, was administered orally, the uptake in the thyroid was determined at intervals, and the uptake curve was drawn. From the estimated thyroid weight and the uptake curve for the test dose, the amount of I^{131} necessary to deliver 6,000 beta roentgen equivalents to the thyroid was calculated. This amount was given as an oral dose and its uptake by the thyroid measured in a manner similar to that for the test dose. Thereafter, the patient was examined at weekly intervals. About six weeks after the initial treatment dose, the patient was reexamined, and retreatment was given if necessary. About 12 weeks after the initial therapy dose, an uptake curve was again obtained, and treatment given as indicated. In most cases more than one dose of I^{131} was given. It was hoped that patients could be cured without being rendered hypothyroid by this treatment. While this was not fully possible, the incidence of hypothyroidism was perhaps slightly less than following surgery. The results of radioiodine therapy for hyperthyroidism in patients without nodular goiters were satisfactory. In 89 patients remission was achieved; that is, the signs and symptoms of hyperthyroidism disappeared, the thyroid returned to normal size, and the laboratory findings no longer suggested hyperthyroidism, even though the patient might have hypothyroidism and/or exophthalmos. Follow-up studies of patients up to five years revealed a striking absence of recurrence.

Southern Medical Journal, Birmingham, Ala.

44:769-880 (Sept.) 1951

Acute Pancreatitis and Its Treatment. M. Gage and G. Gillespie.—p. 769.
Determination of Blood Amylase in Fluid Aspirated from Flank in Pancreatitis: New Diagnostic Aid. F. H. Bowen.—p. 775.
Catarrhal Otitis Media with Effusion: Disease of Retropharyngeal Lymphatic System. J. M. Robison and H. O. Nicholas.—p. 777.
New Implant and Technic for Correction of Loss of Orbital Tissue. A. W. McAlester III.—p. 789.
Ordinary Problems Met with in Electrosurgery of Bladder Neck and Their Solution. J. H. Dougherty.—p. 791.
Medical Management of Chronic Ulcerative Colitis. C. C. Wilson. —p. 797.
Banthine® in Peptic Ulcer and Chronic Ulcerative Colitis: Clinical and Experimental Observations. K. Plummer, J. O. Burke and J. P. Williams.—p. 801.
Banthine® in Treatment of Duodenal Ulcer. E. J. Poth and S. M. Fromm.—p. 807.
The Normal Menstrual Cycle. J. P. Pratt.—p. 812.
Functional Uterine Bleeding. W. M. Allen.—p. 817.
Incidence and Management of Uterine Bleeding in Non-Malignant Pelvic Lesions. H. M. Sluder and F. R. Lock.—p. 820.
Mesantoin® in Management of the Hospitalized Psychotic Epileptic: Report of Toxic Effects and One Fatality. L. Hofstatter.—p. 827.
Role of Anesthesia in Postoperative Anorectal Pain. T. E. Smith.—p. 832.
*Insects and Allergic Problems. R. Bowen.—p. 836.
Some Suggestions on Dermatologic Care of Atopic Patient. H. S. Alden. —p. 842.
Method for Improving Depth Distribution. J. Love, G. N. Combs, W. A. Askew and M. Harcourt.—p. 846.
Orthopedic Shoulder Problem as Related to Industrial Medicine. F. C. Reynolds and L. T. Ford.—p. 849.
Education in General Practice. J. O. Boyd Jr.—p. 853.

Insects and Allergic Problems.—After citing a death in a boy bitten by ants, Bowen says that the literature describes more than 30 varieties of insects that may cause allergic disease. He lists 25 such species and shows that insects may produce sensitization by scales or dust from wings or body, injection of venom through the sting and the instillation of salivary secretions. In some persons the effect of sensitization is due not to the direct action of the irritant but to an acquired specific sensitization. Some children show a true Arthus phenomenon after being bitten by a mosquito. There is a higher incidence of insect dermatoses in children than among adults. Some persons develop a season's immunity in about 10 days, but react again, although less violently, the following season. This explains why visitors to the West Coast will experience unpleasant bites from fleas, yet the natives apparently are not disturbed. Papular urticaria (lichen urticatus) is especially frequent in infants and children, and occurs particularly during the warmer months. Many children with this disorder have been subjected to skin tests and food restrictions to no avail. A history of similar lesions the preceding year is frequently obtained and is suggestive of allergy to insects. The author believes that allergy to mosquitoes and chiggers is an important cause of papular urticaria, in that of 27 patients 24 reacted to mosquitoes and 3 to chiggers. Se ondary infection is frequent and scabies must be ruled out, p sibly by the use of benzyl benzoate. Some of these children h a dog, and fleas and bed bugs are possible causes of their sk lesion. When skin tests are made for the detection of ins allergy, they should be read in the second 24 hour period, as t immediate reaction may be negative. Moths and caterpillars m produce severe urticaria, occasionally with fatal outcome. Sti from bees and wasps are also sometimes fatal. Aphids and fl are mentioned as possible causes of allergic reactions. Dichlo diphenyltrichloroethane (DDT) and insect repellents are value in the prevention of insect bites. Epinephrine and his mine antagonists are helpful in severe reactions after insect bi

Tennessee State Medical Assn. Journal, Nashville

44:321-364 (Aug.) 1951

Laboratory Aids for General Practitioner. J. Adams.—p. 321.
Liver Function Tests: Their Appropriate Selection in Diagnosis Prognosis. C. P. Wofford.—p. 325.
Painful Shoulders: Periarthritis. H. Smith.—p. 330.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

59:431-494 (Sept.) 1951

Improved Uterine Closure in Classical Cesarean Section. P. Jacob —p. 431.
Tumors of Carotid Body: Partial Occlusion of Common Carotid Ar Induced by Polythene. L. R. Chauncey.—p. 434.
*Ovarian Carcinoma Subsequent to Hysterectomy. D. Thorp.—p. 440.
Endometriosis: Study of 150 Private Cases. R. E. Fallas.—p. 448.
Pudendal Block. C. D. Kimball.—p. 460.
Vitallium Prosthesis in Treatment of Fracture of Carpal Navicular. R Legge.—p. 468.
Esophago-Cardioplasty for Megaesophagus: Failure of Operation. G. Nagel and J. A. Ignatius.—p. 472.
Many Different Temperatures of Human Body and Its Parts. E. DuBois.—p. 476.

Ovarian Carcinoma Subsequent to Hysterectomy.—During five year period 1945 to 1949, a total of 276 pelvic tumors w removed at one hospital from women who previously had und gone hysterectomy and in whom one or both ovaries had been removed. Nearly all of these 276 tumors evolved from ovary, and nearly every type of ovarian tumor was represent Ten were malignant, and five of these women are already d as the result of the ovarian malignancy. The author stresses t the widely accepted conservation of the ovaries in women und going hysterectomy requires reevaluation. He feels that si ovarian atrophy or cystic changes ensue following hysterecto it is best to combine hysterectomy with a bilateral oophorecto and questions that the patients' future well-being can be defi in terms of freedom from hot flushes. Authors inconsisten observe that ovarian atrophy frequently or even invariably f lows hysterectomy, while at the same time they also adv against removal of the gonads. This "touch-them-not" traditi stems largely from the false premise that women must invaria suffer distress with the menopause. Artificial menopause resu ing from surgery and/or x-rays need be no more distressing th the symptoms of physiological decline in ovarian activity. The is no valid reason for leaving unpredictable organs like t ovaries, which later in life might produce serious disease.

West Virginia Medical Journal, Charleston

47:285-318 (Sept.) 1951

ACTH and Cortisone Therapy of Ocular Conditions. C. M. Pol —p. 285.
Pulmonary Resection for Solitary Metastatic Lesion. R. W. Postleth and C. B. Hanna.—p. 289.
Your State Society—The Home Front. R. D. Bernard.—p. 291.
Diseases of Larynx. J. T. Spencer.—p. 294.
Advisory Groups in Public Health Administration. N. H. Dyer.—p. 2
*Method of Removing Foreign Bodies from Nasal Cavity Without Inst ments. K. D. Bailey.—p. 298.

Removing Foreign Bodies from Nasal Cavity.—Smooth s faced objects such as beads or certain seeds that swell on conta with the moist nasal mucosa are difficult to remove from t nose of children by means of forceps. Bailey places the patie on his back, covers his mouth with a clean handkerchief an while occluding the nasal orifice opposite the foreign body finger pressure, he gently blows through the handkerchief in the child's mouth. The foreign body will shoot out dramaticall

FOREIGN

ctas Dermo-Sifiliograficas, Madrid

42:749-826 (May) 1951. **Partial Index**

ıfiltrating Epithelioma of Tongue Probably Caused by Dental Prosthesis. X. Vilanova and F. Oller.—p. 768.
rythrodermic Eczemas Treated with Cortisone. P. Chana and J. Zañartu. —p. 785.
reliminary Note on Antibiotic Action of a Penicillium on Dermatophytes. M. P. Miguens.—p. 806.

filtrating Epithelioma of Tongue Probably Due to Dental osthesis.—Lingual epitheliomas most frequently result from friction or irritation caused by teeth that are badly placed have sharp edges. Injuries to the sides of the tongue soon e rise to reparative epithelial hyperplasia, which degenerates sily into squamous cell carcinoma. Electrogalvanic currents ginating from metals of varying electrostatic potential used dentistry may cause repeated burns of the buccolingual icosa, giving rise to leukoplakia, which sooner or later deıerates into epithelioma. The authors report a case of infilting epithelioma of the tongue in a woman aged 70 that was parently caused by friction of the tongue against a prosthetic late she had worn since she was 14. They state that such cases ıy increase as a result of ill-considered extraction of the teeth, h subsequent use of prostheses, in an effort to eliminate foci infection.

chiv für klinische Chirurgie, Heidelberg

269:1-86 (No. 1) 1951. **Partial Index**

ontaneous Arrest of Hemorrhage and Mode of Action of Local Hemostatics. T. Halse and K. Hummel.—p. 1.
eatment of Carcinoma of Thyroid by Means of Radioactive Iodine. O. Eichler, H. Hess, F. Linder and K. Schmeiser.—p. 19.
servations and Clinical Experiences on 372 Cases of Tetanus. W. Köle. —p. 37.
atistical and Clinical Contribution to the Problem of Thrombosis and Embolism. M. Wenzl and R. Kühlmayer.—p. 46.
tropubic Prostatectomy by the Millin Technique (Report on 100 Patients). H. Bross.—p. 65.
chnic and Organization of Preservation of Blood. J. Vollmar.—p. 76.

dioiodine in Thyroid Carcinoma.—On the basis of reports in world literature and their own observations on 10 patients hler and associates discuss the use of radioactive iodine in treatment of carcinoma of the thyroid. This method is espelly suited for advanced cases, in that it permits the simuleous irradiation of the primary tumor and of its metastases. ondary effects resembling radiation intoxication are slight. ere is usually a decrease in leukocytes, but the erythrocyte ınt shows no change. Local reactions are slight, but 4 of the patients complained of burning pains in the skeletal metases as soon as the dose exceeded 10 mc. Some patients comıined of burning sensations of the mucosa of the mouth and conjunctivas, probably the result of the elimination of iodine the saliva and the tear ducts. Therapeutic results suggest that nical cure will be possible in only a few cases, but, in some ses, significant regression has been observed in the size of primary tumor and metastases with corresponding improveent in the general condition. In two of the authors' cases spnea was reduced, probably because of a temporary regresın in the cancer of the thyroid. One patient showed a surpris g improvement of the general condition, with a weight increase 16 kg. Congestion in the head and pressure in the neck lesned, but a measurable regression in metastases was never served. In two patients skeletal metastases remained staınary; however, new metastases developed at other sites in ıe of these patients. Eight of the ten patients had metastases the skeletal system. Only two of these showed a therapeutilly effective uptake of iodine in the skeletal metastases, two hers revealed a slight uptake and four others no uptake. The ses did not reach the optimal level, because the supply of the otope was limited. Increase in the life span or arrest of the ıncer have been reported more frequently than objectively ıeasurable tumor regression, but even with respect to these ıctors longer observation is required for adequate evaluation.

Arquivos de Clínica, Rio de Janeiro

12:503-616 (June) 1951. **Partial Index**

*Calcification of Myocardial Infarct and of Coronary Arteries. N. Botelho Reis and E. Amorim.—p. 503.

Calcification of Myocardial Infarct and Coronary Arteries.—The authors report a case of roentgenologically demonstrable calcification of a myocardial infarct and both coronary arteries. The patient, a 65-year-old man, suffered two attacks of myocardial infarction at the age of 53 and 56, respectively. The last attack was confirmed electrocardiographically. Nine years later he was apparently healthy, except for occasional mild pain of an anginal type. Physical examination of the heart revealed no abnormalities, and blood pressure was normal, but there was electrocardiographic evidence of intraventricular block, and a roentgenogram of the heart showed the above-mentioned calcification. One year later the patient died suddenly of acute pulmonary edema. The authors discuss the roentgenologic differentiation of myocardial and coronary calcification from pericardial calcification, and the clinical and laboratory differentiation from myocardial calcification due to hydatid disease. They say that calcification of a myocardial infarct does not necessarily imply the presence of a ventricular aneurysm.

British Medical Journal, London

2:559-622 (Sept. 8) 1951

Neural Control of Pituitary Gland: I. Neurohypophysis. G. W. Harris. —p. 559.
*Cortisone and A.C.T.H. in Hypopituitarism. V. K. Summers and H. L. Sheehan.—p. 564.
Effect of Cortisone on Crisis in Simmonds's Disease. E. N. Allott and J. H. Simmons.—p. 568.
Case of Simmonds's Disease with Mental Symptoms. J. Todd.—p. 569.
Plasma Pentose Levels in Pre-eclampsia and Their Aetiological Significance. H. N. Green, J. D. Hopewell and C. J. Threlfall.—p. 571.
*Hypoglycaemia, in Treatment of Rheumatoid Arthritis. G. D. Kersley, L. Mandel, M. R. Jeffrey and others.—p. 574.
*Spontaneous Hypoglycaemia After Insulin Therapy in Rheumatoid Arthritis. G. D. Kersley, L. Mandel, K. B. Taylor and M. R. Jeffrey. —p. 578.
Neurological Origin of Peptic Ulcer: Frontal-Lobe Lesions and Gastric Ulcer. J. L. Arteta.—p. 580.
Treatment of Blepharitis. D. Ainslie.—p. 582.

Cortisone and Corticotropin in Hypopituitarism.—Of five patients with hypopituitarism due to postpartum necrosis of the anterior lobe, three were treated with cortisone and two with corticotropin (ACTH). Two patients were given intramuscular injections of 100 mg. of cortisone acetate daily for 20 days and one patient was given the same treatment for 12 days. There was pronounced clinical and biochemical improvement, though two of the patients became depressed, moody, and very obstinate after about two weeks. After the cessation of the treatment there was a gradual deterioration in the patients' condition. The obstinacy and uncooperativeness gradually lapsed into the passive lethargy of the untreated condition. Of the two patients treated with corticotropin, one was given intramuscular injections of 25 mg. of the drug every eight hours for seven days, and the other was given the same treatment for 15 days. There was a slight clinical and biochemical improvement, but after a few days migraine and hemiparesis occurred in both patients, and one became comatose. It seems advisable that corticotropin be employed only with the greatest caution in the treatment of hypopituitarism.

Treatment of Rheumatoid Arthritis with Hypoglycemia.—Of 72 patients with rheumatoid arthritis treated by induction of insulin hypoglycemia, 59 showed clinical improvement after treatment and 32 showed pronounced improvement, but two months later only 40 were still improved and only 22 were greatly improved, while relapses had occurred in the others. Only seven greatly improved patients appeared to be in complete clinical remission six months after completing treatment. Gain in weight was considerable and occurred in all but three patients. There was a tendency to improvement in the sedimentation rate, but not in the hemoglobin level. Reduction in circulating eosinophils occurred almost without exception, suggesting pituitary-adrenal stimulation. Significant increase in potassium excretion in the 24 hour specimens of urine was observed in four of six patients, and a decrease of more than 50% in the phosphate excretion during the period of hypoglycemia in four of five patients in whom these determinations were made. Of 22 control patients who received physical treatment without insulin therapy, 17 were improved and 3 were greatly improved. A second course of treatment with insulin in hypoglycemic dosage had less effect than the first. In a comparison of the clinical effects of treatment with insulin in hypoglycemic dosage and corticotropin (ACTH), three patients who had responded well to insulin and three patients who had failed to respond to insulin were given short courses of 100 mg. of corticotropin in divided doses for four days and then with doses modified as clinically indicated. The three patients who had responded to insulin reacted excellently to corticotropin, while the other three patients responded poorly or not at all. The fact that the degree of clinical response to insulin corresponded closely to the response to corticotropin again suggests that hypoglycemia may have a pituitary-stimulating effect. From the practical point of view, hypoglycemic therapy may be regarded as having a limited value in tiding the patient over a temporary relapse, particularly if this has been occasioned by some temporary or removable factor. In conjunction with other methods it may help in enabling some mildly affected patients to return to work.

Spontaneous Hypoglycemia in Rheumatoid Arthritis.—Of 80 patients with rheumatoid arthritis treated by inducing insulin hypoglycemia, two women aged 36 and 43 had attacks of spontaneous hypoglycemia shortly after therapy was terminated. The first patient received 24 to 38 units of soluble insulin daily for 13 days. Hypoglycemic reactions occurring on 10 of those days resulted in pronounced improvement in the arthritis that was maintained for five weeks. Three months after the termination of the first course a second course of insulin hypoglycemia was given for five days, on four of which good reactions occurred with doses of 32 to 44 units of insulin. Some improvement resulted. An attempt to maintain improvement by inducing single weekly hypoglycemic reactions with 36 units of insulin given one week after the end of the second course was unsuccessful; because of gastroenteritis, insulin was discontinued. Twelve days later the patient was delirious for four hours during the night. Attacks occurred daily for nine days and were controlled by a high-protein diet with a feeding at bedtime. The second patient was given two courses of insulin, with an interval of four months between the two. On the day after the last insulin treatment, the patient was observed to be sweating and incoherent early in the morning and was later incontinent of urine. A similar attack took place two days later, and both attacks were terminated by orally administered dextrose. Only one further attack occurred, 10 days later after an overnight fast and toward the end of a hippuric acid test. In six other patients who had received similar treatment, daily fasting blood sugar estimations for 12 days after cessation of insulin therapy showed that the maximum drop in blood sugar occurred about the 10th day. It seems advisable to insist on the institution of a high-protein diet with a "snack" at bedtime for three weeks after any course of insulin therapy, for the attacks, though not serious, are distressing to the patient.

Edinburgh Medical Journal

58:349-412 (Aug.) 1951

Twenty Years' Experience with Surgical Treatment of Pulmonary Tuberculosis. J. Holst.—p. 349.
Mode of Action of Mucin in Promoting Bacterial Infection. A. F. Maccabe and H. K. King.—p. 377.
Plasma Cholesterol in Coronary Disease. D. P. Basu and C. P. Stewart. —p. 392.

Journal de Médecine de Lyon

32:791-824 (Sept. 5) 1951

First Attempts at Treatment of Chronic Rheumatisms with Cortisone and A.C.T.H. P. Ravault, G. Vignon, A. Charrat and others.—p. 791.
*Treatment of Infectious Endocarditis with Aureomycin. Naussac, Blanc, Lehmann and Larbre.—p. 805.

Aureomycin Treatment of Infectious Endocarditis.—The authors treated three patients with infectious endocarditis with penicillin followed by aureomycin. A fall in temperature was always the first sign of the efficacy of treatment with aureomycin. Improvement in the general condition followed: appetite returned, weight was regained, anemia decreased, and a feeling of well- and return of strength was established. Nephritis, which sisted in spite of the treatment with penicillin, disappeared the influence of aureomycin. Cardiac phenomena were stabi in no case did the heart increase in size. Signs of old emb disappeared, and no new ones occurred. Follow-up of th tients nine, eight, and seven months later indicated that had been cured. Infectious endocarditis has two compon one in the blood, the other in the tissues. The first is show septicemia, but septicemia alone does not control the evol of infectious endocarditis. The visceral or tissue compon equally important. Patients often overcome the septicemi the help of the antibiotics only to succumb to the cardi renal inflammatory processes. The antibiotic of choice s be one not only that proves its activity in vitro but that i well tolerated by the diseased tissues. Aureomycin fulfills of these criteria. The authors advocate a two-stage treat Penicillin is used in large doses, 10 to 20 million units in four or eight injections as soon as the diagnosis is lished. The kind used must be plain penicillin, not slow-a These doses are continued for 15 to 20 days, until a to 250 to 300 million units has been given. Penicillin is the continued and administration of aureomycin begun. The doses are 3 gm. for 20 days, then 2 gm. The medicine is in spaced doses, continued until a total dosage of 100 gr been attained (about 40 days). These doses were well tol by the patients, save for slight digestive disturbances a The authors attach great importance, first, to the successi ministration of the two antibiotics and, second, to the ad tration of large doses for a long period.

Lancet, London

2:317-366 (Aug. 25) 1951

Changing Scenes in Medicine. A. V. Neale.—p. 317.
On Writing to be Read. J. W. Howie.—p. 320.
The Physician and His Art. C. Cameron.—p. 321.
Preparation of Theses for Higher Degrees. R. Whitehead.—p. 32
Microscopic Appearances and Mental Orientation. H. S. D. —p. 326.
Influence of National Service on the Undergraduate. R. E. —p. 328.

2:367-410 (Sept. 1) 1951

Pathogenesis of Megaloblastic Anaemias. L. J. Witts.—p. 367.
*Gastro-Oesophageal Regurgitation. N. A. Lawler and N. D. Mc —p. 369.
*Relation of Salicylate Action to Pituitary Gland: Observations H. Van Cauwenberge.—p. 374.
Effect of Sodium Salicylates on Circulating Eosinophils and Uric-Acid: Creatinine Ratio in Healthy Volunteers. J. R H. Van Cauwenberge and A. Mutsers.—p. 375.
Reactions of Isolated Human Asthmatic Lung and Bronchial T Specific Antigen: Histamine Release and Muscular Contraction. Schild, D. F. Hawkins, J. L. Mongar and H. Herxheimer.—p.
Amyloid Disease and Rheumatoid Arthritis: Report of Three M. O. Skelton.—p. 382.
Prognosis of Portal Hypertension. P. C. Reynell.—p. 383.
Simulation of Insanity: Report of Two Cases. I. Atkin.—p. 385.
Purulent Parotitis in the Newborn: Report of Case. W. A. B. Ca —p. 386.

Gastroesophageal Regurgitation.—In many patients who plain persistently of indigestion, but whose symptoms d fit a known pattern and in whom investigation does not an organic cause, the final diagnosis is, all too often, func dyspepsia. Lawler and McCreath are convinced that in a number of these patients the symptoms are in reality d gastroesophageal regurgitation. In a series of 151 new ca dyspepsia, 45 (30%) were caused by gastroesophageal re tation. In this condition the patient complains of a recu burning, or tight substernal or high epigastric pain, which rises to the suprasternal notch. The pain is that defined as burn by Alvarez and is related not to food but to posture pain comes on when the patient lies down or bends for In about half the cases the pain was felt not only und sternum but also in the back between the scapula, in th half of the chest, in the left shoulder, up either side c sternum, and occasionally behind one or both ears. Abou the patients complain of acid regurgitation into the mout acid fluid often containing particles of food. In the grea jority of patients the discomfort is relieved in a short ti inding up, and it does not occur if the patient avoids lying wn or bending forward within three or four hours of the last al. On the other hand, inflammatory or ulcerative changes y arise and produce additional symptoms. The phenomenon n occur in the absence of sliding or fixed hiatal hernia. A a is made for the early recognition of the condition, because stural treatment relieves the symptoms and, if started in the rly stages, can prevent the development of esophagitis and phageal ulcer.

licylate Action and Pituitary Gland.—The effect of intensive icylic-acid therapy on the urinary excretion of adrenocortical roids led Van Cauwenberge to investigate whether salicylates on the suprarenal cortex directly or through the hypothala- is and the pituitary gland. Experiments were made on rats it had undergone hypophysectomy eight days earlier and on act rats. It was found that the administration of a large dose salicylate to intact rats produces biochemical and hemato- ical signs of adrenocortical hypersecretion, which cannot be served in rats subjected to hypophysectomy. The adreno- tical hypersecretion occurring with salicylate therapy there- e depends on the pituitary.

edizinische Monatsschrift, Stuttgart

5:525-596 (Aug.) 1951. Partial Index

sorption and Utilization of Hemoglobin in Human Digestive Tract. W. Stich and H. Fath.—p. 538.
electasis as Symptom of Bronchial Tuberculosis. K. Beck.—p. 546.
rmonal Function of Spleen. O. Unger.—p. 553.
sinophilia in Allergic Myocarditis and Endocarditis. H. Schlecht. —p. 555.
havior of Serum Protein Bodies in Endocarditis Lenta in Relation to Clinical Picture of Disease. R. Burkhardt and E. Schinner.—p. 559.

sinophilia in Allergic Myocarditis and Endocarditis.—Allergic ctions become localized in the joints and especially in the art, its valvular and muscular apparatus and its vessels. After general discussion of eosinophilia in blood and tissues, the hor describes five patients who had characteristic allergic ocarditis or endocarditis. The first patient had coronaritis and ocarditis that began acutely with mild increase in tempera- e and could be demonstrated in the electrocardiogram. It s accompanied by arthritic symptoms. Increase in eosinophils uld be demonstrated only once at the time of the second heart ack and the attack of sacroiliac arthritis. Two other patients d an allergic myocardial lesion, which was diagnosed on the sis of the electrocardiographic aspects and the presence of inophilia. In a fourth patient, there was relapsing subfebrile umatic allergic endocarditis and myocarditis, and in the fifth e afebrile rheumatic focal myocarditis was associated with ical changes in the electrocardiogram. The author stresses it eosinophilia as a characteristic and diagnostic sign for the stence of an allergic disease can be found only when blood aminations are repeated daily or at least at short intervals. single test is not sufficient. This applies not only to allergic eases of the heart but to all allergic processes.

ederlandsch Tijdschrift v. Geneeskunde, Amsterdam

95:2309-2380 (Aug. 11) 1951. Partial Index

ailey's Disease, Chronic Benign Familial Pemphigus. J. J. Zoon, J. W. H. Mali, A. Roskott and A. C. J. Tellier.—p. 2316.
eatment of Congenital Stenosis of Esophagus in Prematurely Born Infant. P. M. E. Ph. Nyst.—p. 2333.
alignant Hypertension Treated with Prefrontal Lobotomy and Psychotherapy. J. Groen.—p. 2336.

efrontal Lobotomy and Psychotherapy in Malignant Hyper- nsion.—Groen presents a detailed history of a patient in whom alignant hypertension developed as a result of a severe psychic nflict from which the patient could not free himself. Since ither medical nor psychotherapeutic measures had any effect, prefrontal leukotomy was done. The operation had no direct fect on the blood pressure, but it made the patient amenable psychotherapy. A marked decrease in systolic and diastolic ood pressure with considerable improvement in the clinical ondition, eyegrounds, and urine followed. Two years after the peration the patient is alive and at work.

Nordisk Medicin, Stockholm

46:1091-1122 (July 18) 1951. Partial Index

*Treatment of Newborn Children of Rh-Immunized Mothers. B. Broman. —p. 1091.
Bacterial Endocarditis. S. Aarseth and V. Gaustad.—p. 1093.
Acute Fulminant Occluding Laryngotracheobronchitis in Children. P. W. Braestrup and J. C. Nielsen.—p. 1098.
Complication After Blood Transfusion Due to Rh Factor. H. E. Torp and S. Vasli.—p. 1101.

Treatment of Newborn Children of Rh-Immunized Mothers.—Exchange blood transfusion was carried out in 34 out of 41 Rh-positive children born to Rh-immunized mothers, with two deaths, both in infants with grave anemia at birth. None of the surviving children showed any signs of cerebral injury during the neonatal period or, as far as is known, later. Broman says that, while the results of the treatment of liveborn children with erythroblastosis are good, there is as yet no causal therapy to suppress Rh immunization of the mothers, and intrauterine deaths cannot be prevented. In his opinion, routine Rh typing of pregnant women and centralization of the obstetric care of Rh-immunized mothers are necessary conditions for continued improvement of the treatment in this field.

Praxis, Bern

40:707-726 (Aug. 30) 1951. Partial Index

Indications for Prostatectomy and Electroresection in Patients with Prostatic Disorders Complicated by Urinary Retention. A. Perret. —p. 707.
*Aureomycin for Mumps in Adults. F. Schaub.—p. 711.

Aureomycin in Mumps of Adults.—The course of mumps is more severe in young adults, and it also causes more frequent and more severe complications in them than it does in children. The most serious complication is orchitis, which appears in an average of about 30% of sexually mature males and which leads in from one-third to two-thirds of the cases to testicular atrophy and, in cases of bilateral involvement, even to sterility. Pancreatitis occurs in about 8% of cases. Meningitis and encephalitis are comparatively rare complications of mumps in adults, as are damage to the internal ear, oophoritis, mastitis, dacryocystitis, thyroiditis, iridocyclitis, and prostatitis. Until recently only symptomatic measures were available for the management of these complications. Schaub used aureomycin in the treatment of 17 recruits who contracted mumps in the course of an epidemic in a Swiss army camp. Seven of these were hospitalized immediately after onset, whereas the six others had had mumps for several days and already showed signs of complications such as orchitis and pancreatitis. The patients were treated with aureomycin for three to nine days. The total dose ranged up to 20 gm. In a comparison of the patients who were treated with aureomycin with an equal number of patients of similar age range treated between 1946 and 1950, it was concluded that the early administration of aureomycin in epidemic parotitis prevents the development of complications and has a favorable effect on the course of the primary disease. Already existing complications, such as orchitis and pancreatitis, are reduced in severity and subside more rapidly.

Prensa Médica Argentina, Buenos Aires

38:1409-1474 (June 8) 1951. Partial Index

Pulmonary Resection in Tuberculosis. O. A. Vaccarezza, R. Sampietro and F. E. Tricerri.—p. 1418.
Streptomycin in Treatment of Genital Tuberculosis in Men. J. C. Rey, I. Natin and J. Bossi.—p. 1428.
*Cortisone in Acute Gout. L. Broide.—p. 1429.

Cortisone in Acute Stage of Gout.—Cortisone and corticotropin (ACTH) have been used in the treatment of acute gout. Corticotropin causes rapid disappearance of acute attacks of gout that is resistant to colchicum, but when its administration is discontinued the attack recurs, either in the original location or in other joints, with increased violence, unless large doses of colchicum have been given with and after the corticotropin. The action of colchicum against gout is reenforced (but not constantly) by the hormone. Corticotropin is a new and valuable weapon against the aspects of gout most difficult to treat: the attack that resists colchicum and the formation of tophi. Cortisone, like corticotropin, stops the attack, but its withdrawal may be followed by recurrence. The disadvantage of cortisone, as compared to corticotropin, is the longer time it takes to act (usually 24 hours). The action of cortisone on gout is independent of its action on the carbohydrate metabolism and appears to result from humoral modifications, similar to those caused by venesection, which act on the collagen and the purine metabolism. The author states that cortisone should not be given to patients with gout who tolerate or react well to colchicum and its derivatives, because (1) it is not always effective; (2) it takes 24 hours to act; and (3) it is expensive. It should be given to patients who do not tolerate or react well to colchicum, but it must be noted that (1) in spite of its spectacular action in certain acute attacks it is sometimes totally ineffective; (2) it is useful only during attacks, and when it is withdrawn new attacks may occur; and (3) the new attacks, which previously would not have been influenced by colchicum, now give way rapidly before it.

Schweizerische medizinische Wochenschrift, Basel

81:805-828 (Aug. 25) 1951. **Partial Index**

Relation of Humeroscapular Periarthritis to Stiffness of Shoulder (Frozen Shoulder) and Its Therapy. J. Bloch and W. J. H. Nauta.—p. 805.
*Damage to Peritoneum and Intestine Caused by Hot Peritoneal Irrigations. M. Buser and J. de Puoz.—p. 812.
Significance of Hypohyseal-Diencephalic System for Water Excretion. W. Koella.—p. 819.

Damage to Peritoneum and Intestine by Hot Irrigation Fluid.—In studies on guinea pigs the effect of hot isotonic sodium chloride solution on the peritoneal cavity was investigated. With temperatures of 60 C and over irreparable damage was produced, such as peritonitis, mesenteric fat necrosis, thrombosis of mesenteric vessels and, as sequelae, hemorrhagic intestinal infarcts and intravascular hemolysis. With temperatures of from 70 to 80 C, necroses of the intestinal wall and ulceronecrotic enteritis developed. These studies were undertaken after a woman died following irrigation of the peritoneal cavity with isotonic solution of sodium chloride at a temperature of about 65 to 70 C. Pathological studies disclosed chronic ulcerative enteritis, which had been acutely intensified by the thermal effect of the irrigating fluid. Perforation followed, resulting in a fatal suppurating peritonitis. From observations on this case and from the animal experiments it is concluded that the temperature of the isotonic sodium chloride solutions used for peritoneal irrigation or to stimulate peristalsis should not exceed 50 C.

Settimana Medica, Florence

39:235-258 (May 15) 1951

Incidence and Forms of Hemopathy Observed in Medical Clinic of Sassari During Period 1945-1950. A. Scanu and G. Negroni.—p. 240.
*Therapeutic Action of Choline in Coronary Atherosclerosis. O. Carere-Comes, G. Sala and A. Sala.—p. 243.
Clinical Contribution to Amithiozone (Tb. 1/698) Therapy in Various Tuberculous Conditions of Respiratory Apparatus. F. Sorrentino and P. M. Assereto.—p. 246.

Choline in Coronary Atherosclerosis.—Nineteen patients with coronary atherosclerosis were given two daily intramuscular injections of 1 gm. of choline hydrochloride supplemented in some cases with daily oral administration of 2 or 3 gm. of choline. The total dose of choline administered varied from 8 to 88 gm. The duration of the treatment varied from 4 to 37 days. The patients' ages ranged from 48 to 74 years. Cholesterol determination, subjective and objective symptomatology, and electrocardiographic tracings were compared with the values recorded before institution of treatment. Dyspnea and anginal pain decreased, disappearing almost completely in 11 patients. The pulse rate decreased from an average of 108 beats per minute to an average of 78 beats per minute. The systolic pressure dropped 20 to 40 mm. Hg in five patients and 5 to 15 mm. Hg in nine patients, it increased 10, 26, and 45 mm. Hg respectively in three patients and was unchanged in two patients. The diastolic pressure dropped 5 to 20 mm. Hg in 13 patients, increased 10 to 20 mm. Hg in four patients, and was unchanged in the others. Diuresis increased. There was a constant and pronounced decrease of cholesterol from an average of 177 mg. per 100 cc. to an average of 128 mg. per 100 cc. Erythrocyte sedimentation rate showed a pronounced decrease. Electrocardiographic tracings presented modifications, especially in the ST segment, which tend normalization. Best results were obtained in the patients w hypercholesteremia was more pronounced before treatment instituted. Considering the rapid and beneficial therapeutic e of choline in patients with coronary atherosclerosis, it is gested that the drug acts to restore the elasticity of the wa the coronary arteries rather than to cause regression of atheromatous lesions.

Ugeskrift for Laeger, Copenhagen

113:1035-1080 (Aug. 9) 1951. **Partial Index**

*Investigations on Therapeutic Effect of Leocillin. K. A. Jensen, Dragstedt and I. Kiaer.—p. 1039.
*Effect of Leocillin in Acute Inflammation of Middle Ear. J. C. N —p. 1049.
Single Daily Dose of Procaine-Penicillin in Acute Suppurative Media Compared with Effect of Combination Preparation Dipe J. C. Nielsen.—p. 1057.
Nor-Epinephrine in Blood in Pheochromocytoma. A. Lund and K. —p. 1068.

Therapeutic Action of "Leocillin."—Chemotherapy of c pulmonary affections with poorly vascularized processe large cavities has not been especially encouraging. "Leo (the dihydroiodide of the diethylaminoethyl ester of benzy cillin) has been shown to possess a greater affinity for lu sue and to be eliminated in considerably larger quantities sputum than other penicillin preparations. The authors sa while further experiences are necessary for final conclusi the efficacy of "leocillin," it has effected a change of bact the sputum more effectively than other penicillin prepa and has exerted an extraordinarily favorable curative the amount of sputum being reduced to a degree not pre observed. Further, the larger amounts of penicillin that into the sputum will be able to act in cases in which t a moderate amount of penicillinase in the sputum and i in which poorly vascularized processes are present.

"Leocillin" in Acute Inflammation of Middle Ear.—Niel ports that "leocillin," a penicillin preparation with spe finity for lung tissue, gave excellent results in the treatn 60 cases of acute otitis media. Patients under 7 received units once daily, those over 7 received 300,000 units, whi the dosage given in his procaine-penicillin investigati three-fourths of the dosage given in his dipenicillin Complicating otitis in patients with infection of the res tract is thus cured with a preparation adequate for the nary affection, and "leocillin" treatment of acute otitis tients with simultaneous catarrhal affections cures b otitis and the infection of the respiratory tract.

Zeitschrift für Kreislaufforschung, Darmstadt

40:449-512 (Aug.) 1951. **Partial Index**

Relative Importance of Electrokymography Among Methods of tion of Cardiac Pulsation. K. Heckmann.—p. 449.
*Electrocardiographic Changes During Operation for Mitral J. Drewes, S. Effert and F. Loogen.—p. 479.

Electrocardiographic Changes During Operation for *Stenosis.*—On four patients in whom an operation w formed for pure stenosis of the mitral valve, electr graphic records were made before and after the operati during the important phases of the intervention, a con registration being impossible for technical reasons. E the heart, opening the pericardium, and the placing of string sutures exerted no influence on stimulus formati conduction. However, when the contracted mitral val split by introducing the index finger through the left and by spreading of the clamp blades, disturbances in resulted. Whether this disturbance in rhythm is the res mechanical irritation produced when the finger advance the auricle to the valve or is caused by the disturbance i perfusion, because of the brief obstruction of the mitral cannot be said. The change in sinus frequency may resu a number of factors. At any rate, the electrocardio changes suggest the risk of the possible development tricular flutter or fibrillation, and, in order to reduce t it is essential to shorten the intracardiac intervention a as possible.

BOOK REVIEWS

Physical Diagnosis. By Raymond W. Brust, A.B., M.D., F.A.C.P., ssociate in Medicine, University of Pennsylvania Medical School. Introction by Truman G. Schnabel, A.B., M.D., F.A.C.P. Cloth. $4.50. Pp. 4, with 60 illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd ., New York 1, 1951.

Philadelphia has been noted for many years for the excelncy of its physical diagnosticians, as well as for the emphasis laced in its various medical schools on the importance of learng the principles of physical diagnosis. Also, Philadelphia has roduced in "Diseases of the Chest and the Principles of Physil Diagnosis," written by George W. Norris and Henry R. M. andis, one of the American classics in this field.

Dr. Brust's book is worthy in the best traditions of writing n physical diagnosis. He stresses the importance of accurate istory-taking, without confusing the student with the intricacies f psychiatric case history-taking. The importance of doing a omplete and thorough physical examination is properly acnted. The student using this book will not be burdened with icky physical signs named after long-dead European physicians. or will his mind be diverted from the text by illustrations of ll types of physical defects. The chapter on the mental state nd speech disorders is well done from the point of view of hysical diagnosis, as are those on the nervous system and the nportant cranial nerves.

This textbook is excellent, and, when properly used to complement a thorough and practical course in normal and abnormal ysical diagnosis on patients (not lectures), will do much to roduce students of medicine who have confidence in using their wn senses for the diagnosis of disease. In this day of thousands f laboratory tests, many of which serve only to confuse and all f which increase the cost of medical care, confidence in one's wn ability in physical diagnosis is probably the most precious ossession of a physician.

Meister der Chirurgie und die Chirurgenschulen im deutschen Raum: eutschland, Österreich, Deutsche Schweiz. Von Prof. Dr. H. Killian und . Krämer. Cloth. 24.80 marks. Pp. 232, with 32 illustrations. Georg hieme, Diemershaldenstrasse 47, (14a) Stuttgart O; agents for U. S. A.: rune & Stratton, Inc., 381 Fourth Ave., New York 16, 1951.

The authors present a history of the great institutions teachg surgery in Germany, Austria, and in the German-speaking rritory of Switzerland. Their emphasis is mainly on developents in these countries during the 18th and 19th centuries, hen German surgery rose to world fame. There is also a rather imulating account of the history of medieval surgery and of e origin of the illustrious school in Italy during the 12th and 3th centuries. The long struggle between unscholarly surgical chnicians and "highbrow" but inefficient theoretical teachers f medicine is described. From this struggle evolved the skilled, cientific, modern surgeon.

The master surgeons and teachers of the German-speaking niversities came from such places as Prague, Vienna, Heidelerg, Cologne, Freiburg, Berlin, Zurich, and Bern. Many a member of the older generation of American surgeons will find the iography of his European teacher and a record of his work in his book. The younger surgeons will find the genealogical charts f the German chairs of surgery fascinating and revealing reading; for example, the recently deceased Sauerbruch is shown s an outstanding pupil of von Mikulicz, who was a student of illroth, who in turn can be traced back to Langenbeck.

The history of prominent teachers of surgery in the greater erman universities has been brought up to date. The account nevertheless had to be selective, not only because of limitation of space but also because of the difficulty in evaluating the permanent merits of recent generations, on which time alone will pass further judgment. One wonders, however, why the name of Finsterer was mentioned in a very abbreviated sense and that only politically. This book should make interesting reading for anyone interested in the subject and who can read German.

Oral Rehabilitation: Complete Occlusal Reconstruction, Treatment of Dental Deformities and Related Subjects, The Closed Bite. By Jerome M. Schweitzer, B.S., D.D.S., Consulting Dental Surgeon, Woman's Hospital, New York City. Cloth. $20. Pp. 1161, with 1157 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1951.

This publication is largely a review of the literature on the various phases of oral reconstruction, with a summary and evaluation by the author of the theories and methods presented in each section of the book. The early chapters of the book offer a thorough presentation of the anatomy and physiology of the masticatory apparatus, including chapters on the anatomy of the temporomandibular joint and the muscles of mastication as well as a thorough exploration of the various theories of mandibular movement. There is a discussion of temporomandibular joint radiography and the various pathological conditions encountered in the joint and related structures and their treatment. A large portion of the book deals with a discussion of what constitutes normal occlusion and the vast number of variations from normal seen in the human teeth. Approximately the last 300 pages deal with the indications for, and methods of, oral reconstruction.

There is rarely seen a more thorough coverage of the literature in any one field than is presented in this book. Some 563 authors are quoted, and in many instances several publications by each author are cited. However, this very thoroughness will possibly prove the book's greatest weakness as far as the average reader is concerned, since many old and now obsolete theories and methods are presented in great detail. A case in point is the injection of sclerosing solutions into the temporomandibular joint. Several pages are devoted to the technique of such injections, so that the casual reader might think such therapy entirely acceptable if he did not carefully read the author's further discussion, in which he points out its dangers. To be sure, the author's conclusions in this instance are generally sound, as they are in most other cases; but the book requires careful reading to avoid picking up misconceptions. For these reasons the book is not recommended for cursory reading, but to the critical student of oral rehabilitation it should prove invaluable. The author is well qualified to present his subject and has obviously spared neither time nor work in its preparation. His efforts should contribute much to this specialized field of dental practice.

The Management of Fractures, Dislocations, and Sprains. By John Albert Key, B.S., M.D., Clinical Professor of Orthopedic Surgery, Washington University School of Medicine, St. Louis, Mo., and H. Earle Conwell, M.D., F.A.C.S., Associate Professor of Orthopaedic Surgery, University of Alabama School of Medicine, Birmingham. Fifth edition. Cloth. $16. Pp. 1232, with 1195 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1951.

Although there have been many books published during the past two decades on the treatment of fractures, dislocations and sprains, only three are worthy of note as books of reference. One was first written and published in Austria; a second came out of England; and the third is this splendid almost encyclopedic reference work. One of the two authors, John Albert Key, has not only been an outstanding teacher of orthopedic surgery and a widely known and admired clinician but has contributed much in solid, basic research, carried on in his own laboratories at Washington University School of Medicine in St. Louis, where he is clinical professor of orthopedic surgery, and associate surgeon of Barnes, Children's, and Jewish hospitals. Albert Key is both careful and thorough in all things that he does, and is perhaps the most stimulating and pertinent critic among orthopedic surgeons and surgeons of trauma.

H. Earle Conwell, co-editor with Dr. Key, thoroughly trained in all the disciplines of the therapy of fractures, dislocations, and sprains, for more than 20 years has had a most extensive practical experience in dealing with traumatic injuries as chief of the orthopedic service of the South Highland Infirmary and as consulting orthopedic surgeon or attending orthopedic surgeon to five other hospitals in Birmingham, Ala. In these hospitals he has been responsible for the treatment of the injuries suffered by thousands of employees of the coal mines and steel

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The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

mills of the Birmingham area. Thus, we have combined in this book of orthopedic trauma the wisdom that comes of wide clinical experience and extensive laboratory research.

The first edition of this excellent book was published in 1934. In the preface of the first edition Key and Conwell state that the purpose of this text is to furnish a practical working guide in the treatment of fractures, dislocations, and sprains. The first edition as well as all subsequent editions included a separate chapter on the subject of injuries as they are provided for by the Workmen's Compensation laws. There are chapters dealing with fractures of the face and skull and trauma to the brain that were written by specialists in those fields.

The popularity of this book has been no surprise to those who know Key and Conwell. Medical students, surgeons of trauma, orthopedic surgeons, and the orthopedic physicians of the United States armed forces for almost two decades have turned to this reference book when in need of knowledge concerning their most difficult orthopedic traumatic problems. In this edition the authors have deleted many illustrations and have shortened the text in an attempt to make the book less bulky. However, the total volume of this book is very slightly reduced over that of the previous editions, because many new illustrations and much material describing new methods or modifications of old methods have been added. Among the more important changes are those of the modern treatment of compound fractures and adequate descriptions of the use of medullary fixation of fractures of the femur and of the tibia. The changes in this text have been extensive, and the entire book has been reset. This is a textbook that must be in the library of all orthopedic surgeons or surgeons of trauma who wish to have a complete set of the best reference books on the subject of the treatment of fractures, dislocations, and sprains.

Psychological Factors of Peace and War. Edited by T. H. Pear. Contributions by G. W. Allport, and others. Cloth. $4.75. Pp. 262. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1950.

The United Nations Association is to be congratulated for sponsoring and publishing a volume so relevant to the basic troubles of modern times. This book contains 10 specific studies by nine distinguished psychologists on what are perhaps the most important, and to the layman certainly the most interesting, sociopsychological aspects of war and aggressive behavior. Above all, the informed public needs to know more about this attitude and the reasons for it, as is shown in Dr. Eysenck's contribution. He draws attention to the disturbing disagreement between the views of psychologists as compared with those of the average citizen. While the former are almost unanimous in their observations concerning the cause of war, the opinions of the general public are exceedingly confused, revealing at times dangerous irrationality and simplicity of mind. Dr. Hilda Himmelweit (Chapter 8, Frustration and Aggression: A Review of Recent Experimental Work) carries the analysis still further. She points out that the precise nature of the interrelation between frustration and aggressive attitudes, postulated by Freudians as an aggressive instinct per se, needs far more tangible evidence and analytical clarification before definite generalizations can be made. The other studies are connected variations of the same broad theme, and, to the general reader, offer an approach not too often encountered.

Soft Tissue Radiography: Technical Aspects and Clinical Applications in the Examination of Limbs. By Arne Frantzell. *Acta radiologica*, supplementum 85 Translated by Klas Magnus Lindskog. Paper. 20 Swedish crowns. Pp. 103, with 37 *illustrations*. *Almqvist & Wiksells Boktryckeri-A.-B.*, Uppsala, 1951.

This supplement deals with the roentgen examination of the soft tissues of the extremities, without use of contrast media. It includes an analysis and survey of the technical factors involved in producing good soft tissue images. The sources of lack of clarity in the roentgen image are discussed. A number of the author's experimental findings are explained in detail and suggestions for filming are outlined. The reproductions of the roentgenograms are good, especially considering that the soft tissue image is of main interest. This is an interesting exposition of the factors involved in this type of radiography. The book is well written and is a good reference on the subject.

Hospitals: Integrated Design. By Isadore Rosenfield. Progressive Ar tecture Library. *Second edition*. Cloth. $15. Pp. 398, with 303 Reinhold Publishing Corporation, 330 W. 42d St., New York 18, 19

Lincoln Steffens once said, "Nothing is done finally and ri There is not now and never has been, a perfectly run railr school, newspaper, bank, theater and no business is, or ever h been built, managed or financed as it should be and some d will be." Builders of hospitals will, if they follow the plans a suggestions of the author, more nearly achieve the perfect. T author suggests, however, that the changes in technique and c cepts will require frequent revision of the text.

Hospitals, like human beings, develop personalities. It is p fully apparent that many hospitals built during the past dec are the result of a resistance to change of the planners a builders. It is refreshing to find clear-cut reasoning for selec of site, of size, and of type of component units; in fact, fr the hospital's concept to its completion, integration is the k note of this book.

In many hospitals there is a lack of storage facilities adequate provision for personnel, such as lockerrooms and w rooms. There is no guesswork in the author's determinatio such facilities; the requirements are ascertained by sin arithmetic. If frequency of use is any indication of the imp tance of a unit in the integrated hospital picture, two units serve, in future revision, a great deal more attention. Cen service or central supply (an entirely different unit from cen surgical supply) is a unit being established in many more e ing hospitals every year. The other unit is the pharmacy. E year more and more therapeutic agents are introduced, pla greater importance on pharmacy service.

The problem of the small hospital is well handled in chapter, stressing its importance in the over-all problem of h service. Hospitals for tuberculosis and other special institu as well as the integrating of such units in the general hos are well covered in all their aspects. Two interesting cha are "Daylight for Hospitals" and "Artificial Illumination." one discovers the reasons for poor lighting in so many pre day hospitals. The mechanical plant, construction, details ishes, and costs are as well covered as the professional asp The work is profusely illustrated; the plans are clear and fo most part understandable to a layman such as a trustee or ilar interested person. The author's years of experience ar flected in the breadth and scope of the subject. Very few tions and problems remain unanswered. It is a valuable refe work for the architect, the student of hospital administra and the hospital administrator.

La tuberculosis traqueobroncopulmonar. Tomos I y II. Por el Luis Sayé. Con la colaboración de los doctores Alvaro Bence, je Servicio de broncoscopia de la Cátedra de patología y clínica de la culosis de la Facultad de medicina de Buenos Aires, y Diego Fer Luna, *director* del Instituto central de patología general y de la culosis, Buenos Aires. Cloth. Pp. 598; 610, with 1018 *illustrations* torial Guillermo Kraft Limitada, Reconquista 319-327, Buenos Aires,

The authors present an exhaustive text on the various p of tracheobronchial pulmonary tuberculosis from all as pathological, clinical, prognostic, therapeutic, and statistical numerous pages and figures of these two volumes, not incl color plates and numerous tables, attest to the scope of the and the importance of the subject. The first volume con primarily the evolution of tracheobronchial tuberculosis elementary study of the anatomic-clinical nature of the tra bronchial lesions, and the frequency of tracheobronchial t culosis, with the anatomic pathology and general and s clinical features.

Volume 2 deals with tracheitis, tracheobronchitis, and t culous bronchitis. Included are primitive tracheal tuberc the forms of primitive infection, the primitive bronchial ste and tracheobronchitis. Hematogenous tuberculosis is well sented in its many aspects and, finally, primary infection t culosis is covered in all its phases; anatomic, patho experimental, epidemiological, bacteriological, and diagn

The volumes are well prepared, and illustrations are chosen and printed. Written in Spanish, these volumes will a to all conversant with this language. They can be recomme for tuberculosis and thoracologic libraries. The author thoroughly conversant with their subject and have made effort to present all phases of the subject completely.

QUERIES AND MINOR NOTES

PROTOVERATRINE IN HYPERTENSION

To the Editor:—*There have been reports of beneficial results from the use of protoveratrine in the treatment of hypertension. Is this preparation available commercially and if so where can it be secured?*

Dorn S. Hower, M.D., Lewistown, Pa.

Answer.—Protoveratrine is in use at the Massachusetts General and Beth Israel hospitals in Boston in a special investigation of its physiological and clinical effect in hypertension. It has been used both parenterally and orally and at present is being given orally to 25 ambulatory patients (in some cases for over a year) by Dr. James H. Currens, who is gathering data about the value of this particular purified preparation from veratrum album. The drug is not yet on the market but is prepared by Eli Lilly and by Pitman & Moore of Indianapolis for investigative purposes. It gives considerable promise for future therapy and seems to be the best of the veratrum preparations that have been tried.

DIRECT INOCULATION WITH TUBERCLE BACILLI

To the Editor:—*What are the probabilities of direct inoculation through a stab wound of tubercle bacilli? A butcher of cattle infected with tuberculosis, during the course of nine years has received several dozen stab wounds in the legs with a knife covered with blood from tuberculous cows. I should like to know, also, the preferred treatment for a wound in which a known inoculation has occurred.*

J. R. Stacy, M.D., Oklahoma City.

Answer.—There are possibilities, and strong probabilities, that butchers working with tuberculous meat will sooner or later contract the disease, owing to superficial wounds, either from knives or abrasions. The type of tubercle called "anatomical wart" occurs in butchers, and also in physicians and technicians working on tuberculous cadavers. Most of these lesions remain localized and heal without producing generalized disease. However, occasionally systemic disease develops from them. Before the use of streptomycin, treatment was a matter of watchful waiting. Now streptomycin is administered, and the infected part immobilized.

PREGNANCY AND BACTERIAL ENDOCARDITIS

To the Editor:—*A normal pregnant woman (gravida II, para I) last menstruated five months ago. Her first pregnancy terminated normally in 1947. In April, 1949, the patient had subacute bacterial endocarditis, with a positive culture for 10 days for nonhemolytic enterococci, which responded to treatment with a penicillin-streptomycin mixture. The blood culture has not been positive since that time. Splenomegaly and petechiae were present only for a short time during the early course of the disease. A loud harsh systolic murmur developed, maximal in the mitral area and transmitted over the entire precordium. This is still present. Does this woman need regular blood cultures before labor begins? Does she need antibiotic treatment at any time before delivery?* *M.D., California.*

Answer.—If this patient does not have fever and is not ill now or near the time of labor, there is no point in taking blood cultures. However, the patient should be given a penicillin-streptomycin mixture for three or four days before the expected day of delivery and surely for two or three days after the baby is born, because the danger of postpartum infection is great.

RENAL CALCULI IN A YOUNG MAN

To the Editor:—*My son, who is 20, is a patient at an air base hospital. Three weeks ago he passed a renal calculus, causing pain, hematuria, and urinary frequency lasting five days. He is now free from pain, although he does have some hematuria. X-rays reveal several calculi in both kidneys and depositions in the prostate and possibly in one adrenal. What quanitative blood tests would reveal the cause of such a condition in a person of that age? What treatment should be instituted, and what is the status of the possibility of dissolution of renal calculi?* *J. H. Teusink, M.D., Cedar Springs, Mich.*

Answer.—The possibility of hyperparathyroidism should be excluded by blood chemical analysis for calcium, phosphorus, and alkaline phosphatase. If possible, the calculus or gravel that has been passed should be analyzed to determine its exact composition. The treatment will depend on the chemical nature of the calculi. Since they presumably contain calcium, the intake of calcium-containing food, especially milk and milk products, should be strictly reduced. If the urinary calcium excretion, as shown by a Sulkowitch test, continues to be high, the administration of relatively large amounts of aluminum gels as advocated by Shorr and Carter (*J. A. M. A.* 144:1549 [Dec. 30] 1950) is indicated. With this treatment and a high fluid intake, residual calculi may gradually dissolve, if they consist chiefly of calcium phosphate. Urine cultures should be made to determine the presence of possible infection and indicate the appropriate antibiotics. If there is any chemical suggestion of parathyroid dysfunction, x-ray survey of the bones might help. Finally, careful studies should be made of renal function, including serum chloride and bicarbonate determinations, to detect a possible specific distal tubular impairment of ammonia production with secondary hyperchloremic acidosis, osteoporosis, and nephrocalcinosis.

NUMBNESS OF FOREARM

To the Editor:—*I have seen several patients with psychiatric disorders, chiefly of an anxiety nature, who have complained of frequent numbness and "falling asleep" of the forearm and hand, chiefly on the left side, often with onset in the ulnar areas but rapidly spreading to the entire involved area. What is the physiologic explanation of this phenomenon? Is there any specific symptomatic treatment aside from treatment of the primary cause, the neurotic process itself?*

Edward Dengrove, M.D., Asbury Park, N. J.

Answer.—The problem as designated falls into two categories: 1. The primary neurotic process is one that should be treated directly by psychotherapy. Whether this can be handled by psychotherapy in the ordinary sense or a form of psychoanalysis long or brief will depend on the factors of the problem. These can be determined only after a careful examination of the patient by a qualified psychiatrist.

2. As regards the numbness and "falling asleep" of the forearm and arm, chiefly on the left and chiefly in the ulnar areas, it is suggested that a careful neurological examination be done to rule out local disease. This region, as well as its spinal cord connections, is the site of many diseases, and a complete examination should be done. Among other things there is a possibility of a pressure involvement as the person relaxes and compresses this nerve at the elbow. Scalenus anticus syndrome, cervical rib, syringomyelia, and numerous other affections must be considered. Certainly no one would hazard a guess without a careful review. It is entirely possible that some of the symptoms may be functional in origin and may be related to the original neurotic process, but one should be loathe to accept such an explanation until a comprehensive examination has been carried out.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

ABNORMAL SENSATIONS FOLLOWING CEREBROVASCULAR ACCIDENT

To the Editor:—*Is there any cure for paresthesias (pin and needle sensations) of the arm of a man, 75, who collapsed two years ago, apparently owing to a cerebral insult in a sensoric field, and who has since been suffering from these often unbearable sensations continuously (except during sleep) without any motor disturbances? Short-wave, faradic-galvanic treatment (of the contralateral part, too), infiltration of the stellate ganglion, codeine, and infrared and ultraviolet rays have been ineffective. Would procaine hydrochloride given intravenously help? Do you have any other suggestions?*

Egon E. Lustig, M.D., New York.

Answer.—Abnormal sensations following a cerebrovascular accident (thalamic hyperpathia) are most intractable phenomena. Cervical sympathetic block of the contralateral side, or paravertebral block of the second to fourth dorsal sympathetic ganglions on the painful side may help. Centrally acting drugs, such as mephenesin, can be tried cautiously. In this patient, section of central sensory pathways cannot be considered. Procaine hydrochloride given intravenously and very slowly, in 1:1,000 dilution, may give temporary, but not lasting, relief.

MYOCARDIAL INFARCTION

To the Editor:—*Alpha-tocopherol intramuscularly with calcium gluconate intravenously has been used postoperatively to prevent formation of thrombosis. Can these drugs be used for the treatment of acute myocardial infarction? Would they be as effective as heparin? Could the calcium be given orally?*

M.D., Kentucky.

Answer.—Claims made regarding the value of alpha-tocopherol and calcium gluconate for the prevention of thrombosis have not been substantiated by other investigators. The evidence regarding the effect of these substances on the antithrombin level and their importance in preventing clotting of the blood vivo is inconclusive. No evidence has been advanced in the ture to demonstrate that these agents are of any value in treatment of acute myocardial infarction. Heparin and bisdroxycoumarin (dicumarol®) have been demonstrated to produce a pronounced effect on the death rate and the incidence of thromboembolic complications in acute myocardial infarction (Wright, I. S.; Marple, C. D., and Beck, D. F.: Anticoagulant Therapy of Coronary Thrombosis with Myocardial Infarction, *J. A. M. A.* **138:**1074 [Dec. 11] 1948). Although the use of calcium in this regard has no sound basis in experimental or clinical experience, it may be administered orally if desired.

DUODENAL STASIS AND HYPERPERISTALSIS OF STOMACH

To the Editor:—*A well-developed and well-nourished man, 41, has been examined at many famous clinics; the only diagnosis is hyperperistalsis of the stomach, with rapid emptying. The patient may have pain after he eats, relieved by vomiting; if he does not have pain, he may be nauseated, which is also relieved by vomiting. Again, if he does not have a sensation of something in his stomach, he finds the only remedy for his nausea is food. Beef and pork products cause nausea in about 30 minutes to one and one-half hours, but when he vomits he feels better. He cannot eat anything with fat in it, as it will do the same thing. What foods and drugs decrease the emptying time of the stomach? Banthine,® sedation, and belladonna preparations are of no help.*

John F. Rainey, M.D., Anderson, S. C.

Answer.—This patient, in addition to having hyperperistalsis of his stomach, may have duodenal stasis, which may be due to his having low-grade duodenal-ileus from time to time. The inquirer does not mention whether the patient has free hydrochloric acid in the stomach, whether the vomitus is yellow or green, or whether there is evidence of atrophic gastritis.

Since banthine® (beta-diethylaminoethyl xanthene-9-carboxylate), sedation, and belladonna preparations have been tried, it is suggested that the patient assume a knee-chest position for 10 minutes immediately after meals. He should sleep with the foot of his bed elevated 12 inches. These simple measures may relieve his nausea and his desire to vomit. His intolerance for fatty foods suggests a disturbance in the biliary tree and, particularly, a hypokinetic type of dyskinesia in which the gallbladder does not empty, but relaxes, when fats are brought in contact with the ampulla of Vater. This could be easily determined by a cholecystogram. Complete neurological examination, to rule out cerebral pathology as a cause of the interabdominal trouble, is suggested. If clinical improvement is not obtained, an intravenous pyelogram, to discover if there is intermittent hydronephrosis, associated with nephroptosis, may be worth while. Perhaps there is some obstruction to the passage of urine from either kidney. The patient may be given 15 minims (9 cc.) o dilute hydrochloric acid in a suitable vehicle a half-hour afte meals, to overcome the nausea. In the last analysis, the descrip tion best fits that of patient with intermittent duodenal stas bordering on ileus.

EPILEPSY

To the Editor:—*A man, 29, had his first epileptiform seizu while in the army in 1944. He had no more seizures while army. After discharge he completed his last two years of cc lege. He now holds a position requiring much mental effo and concentration. Within the past two years he has h several seizures. Two electroencephalograms were interpret as normal. General physical examination was normal, inclu ing sugar tolerance tests. The childhood history is no contributory. Are pneumoencephalogram and arteriogra indicated?*

M.D., Pennsylvania.

Answer.—A seven year history, absence of neurological a electroencephalographic abnormalities, or symptoms of int cranial pressure argue against an expanding lesion. Absence a history of brain injury, or focal seizures would argue agai any form of organic epilepsy. Therefore, institution of di therapy seems of more immediate importance than the suggest examinations.

BAGS UNDER THE EYES

To the Editor:—*I read all the explanations given by your f consultants in answer to the query on "Bags Under the Ey in* The Journal, *March 17, 1951, page 858. I am of the op ion that another explanation should be added. A few ye ago Dr. Berardinelli, professor of internal medicine at School of Medicine of the University of Brazil, presentec the Academia Nacional de Medicina the following theory*

The "bags" about which Dr. Mandel inquires may be fou also in certain diseases of the biliary tree. This presentat was in December, 1945, and since then this author and so other Brazilian doctors have had the opportunity of confi ing this opinion. Recently a paper by Dr. Berardinelli appea in the French literature. He described a new sign for cholecystopathies: bilateral edema of the lower eyelids.

"The clinical drainage of the gallbladder (by duodenal tubation or a cholecystokinetic medication) reduces the ede may even in certain cases, make it disappear completely. T sign may be able to guide us in those cases in which the cla cal features of the cholecystopathies are not so evident. A from an esthetic point of view, especially in women, kn ing the origin of the edema of the lower eyelids permits us follow an efficient and rational therapy.

"The pathogenesis is obscure: it may have something to with the fact that the eyelids on account of their soft conn tive tissue, are the seat of minimal edemas and by the humo alterations probably present in the cholecystopathies, n induce the bilateral edema."

Figueiredo Mendes,
Av. Rio Branco, 257-18,
Rio de Janeiro, Brazil, South Americ

CORRECTION

Nitrite Instead of Nitrate.—In the answer to the query entit "Isopropyl Alcohol" in The Journal, November 24, page 13 in the ninth line from the bottom of the right hand column word "nitrate" should have been "nitrite."

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HYPERTENSIVE CARDIOVASCULAR DISEASE

EFFECT OF THORACOLUMBAR SPLANCHNICECTOMY ON MORTALITY AND SURVIVAL RATES

Reginald H. Smithwick, M.D., Boston

Diets low in sodium and fat, drugs having a sedative hypotensive effect, and surgical intervention on the mpathetic nervous system are the principal measures iich are available at the present time for the manage- nt of hypertensive cardiovascular disease. Since the use of this disorder is unknown, none of these meas- es can be regarded as a specific form of treatment. vertheless, they have all been shown to be of some rapeutic value. Numerous articles have appeared in literature in recent years, dealing with the effects of se measures on blood pressure levels and responses, the cardiovascular system, and on symptoms. There as yet, however, little information concerning the effect treatment on life expectancy. This is due to the fact at it requires a long follow-up of large numbers of nsecutive patients treated in a particular fashion, companied with suitable control data, in order to termine whether the mortality rate has been affected nificantly.

The primary objective of the surgical treatment of pertensive cardiovascular disease was to determine iether the prognosis for these patients could be signifi- ntly improved. Although my own interest in this prob- m extends back over a period of 17 years, it was not itil 1938 that a standardized surgical procedure was lopted after years of trial and error with every con- ivable variation of sympathectomy. Since 1938, ap- oximately 3,000 patients have been referred to me for nsideration of surgical treatment. Of these, approxi- iately two-thirds have been operated on, and one-third ave been treated medically. The majority of these cases ave not been followed long enough to be included in ie discussion at this time. They will be reported on as oon as the duration of follow-up permits. A continuous ollow-up study is in progress. As a consequence, the ata are at all times approximately 98% complete. Less than 2% of the patients have not been followed. The purpose of this communication is to discuss the effect of thoracolumbar splanchnicectomy on the mortality and survival rates of the first 892 patients in this series. They were seen during the years 1938 to 1946, inclusive, and have been followed at least four and at most 12 years.

TABLE 1.—*Mortality Among Hypertensive Patients Not Treated Surgically*

Author	Number of Cases	Time Followed (Yr.)	Mortality (%)
Janeway (1913)	244	5-10	81
Blackford, Bowers, and Baker (1930)	202	5-11	50
Keith, Wagener, and Barker (1939)	219	5- 9	91
Rasmussen and Boe (1945)	100	6	52
Bechgaard (1946)	1,038	4-11	28
Palmer, Loofbourow, and Doering (1948)	430	8 (average)	61
Perera (1948)	250	12 (average)	17
Hammarström and Bechgaard (1950)	435	2-10	51

From this material, together with other data which have accumulated in the literature, it is possible to gather a rather clear impression of the effect of this operation on the prognosis for patients with hypertensive cardiovascular disease.

MORTALITY FOR HYPERTENSIVE PATIENTS NOT TREATED SURGICALLY

From time to time since the introduction of the sphygmomanometer at the turn of the century, physicians have reported on the deaths resulting from hypertensive cardiovascular disease. Starting with the study of Janeway in 1913,[1] additional reports have continued to appear in the literature. Representative of these are the publications of Blackford, Bowers, and Baker (1930) [2]; Keith, Wagener, and Barker (1939) [3]; Rasmussen and Boe (1945) [4]; Bechgaard (1946) [5]; Palmer, Loof-

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From the Departments of Surgery, Massachusetts Memorial Hospitals and Boston University School of Medicine.

[1] Janeway, T. C.: A Clinical Study of Hypertensive Cardiovascular Disease, Arch. Int. Med. **12**: 755 (Dec.) 1913.

[2] Blackford, J. M.; Bowers, J. M., and Baker, J. W.: A Follow-Up Study of Hypertension, J. A. M. A. **94**: 328 (Feb. 1) 1930.

[3] Keith, N. M.; Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension: Their Course and Prognosis, Am. J. M. Sc. 97: 332, 1939.

[4] Rasmussen, H., and Bøe, J.: Prognosis of Essential Hypertension, with Remarks Respecting Indications for Operative Treatment, Acta med. Scandi- av. **120**: 12, 1945.

[5] Bechgaard, P.: Arterial Hypertension: A Follow-Up Study of 1,000 Hypertonics, Acta med. Scandinav. supp. 172, p. 3, 1946.

bourow, and Doering (1948)[6]; Perera (1948)[7]; and Hammarström and Bechgaard (1950).[8] Their findings are summarized in Table 1. A study of these data indicates that the mortality rate for the different groups of patients varies tremendously, from 17 to 91%. While the duration of follow-up also varies, it is apparent that this is not an adequate explanation for the marked difference in mortality rates. A detailed study of these reports as well as of my own material indicates that the amount of cardiovascular disease which exists when the patient is first seen is extremely important for prognosis.

TABLE 2.—*Mortality Rates for Nonsurgically Treated Hypertensive Patients Grouped According to Criteria of Keith, Wagener, and Barker*

	Nonsurgical Series (K., W. and B.)					Nonsurgical Series (Smithwick)				
Group	No. of Cases	No. of Deaths at 5 Yr.	Mortality at 5 Yr. (%)	No. of Deaths at 5-10 Yr.	Mortality at 5-10 Yr. (%)	No. of Cases	No. of Deaths at 5 Yr.	Mortality at 5 Yr. (%)	No. of Deaths at 5-10 Yr.	Mort at 5 Yr. (
1	10	3	30.0	4	40.0	59	18	30.5	22	37.
2	26	12	46.3	17	65.4	53	22	41.5	23	43.
3	37	30	81.0	34	92.0	52	37	71.0	41	79
4	146	145	99.4	145	99.4	28	28	100.0	28	10
Totals	219	190	87.0	200	91.2	192	105	55.0	114	59.

TABLE 3.—*Mortality Rates for 411 Nonsurgically and 538 Surgically Treated Hypertensive Patients Grouped According to Criteria of Keith, Wagener, and Barker*

	Nonsurgical Series (K., W., and B. plus Smithwick)					Surgical Series (Smithwick)				
Group	No. of Cases	No. of Deaths at 5 Yr.	Mortality at 5 Yr. (%)	No. of Deaths at 5-10 Yr.	Mortality at 5-10 Yr. (%)	No. of Cases	No. of Deaths at 5 Yr.	Mortality at 5 Yr. (%)	No. of Deaths at 5-12 Yr.	Mort at 5 Yr.
1	69	21	30.4	26	37.6	165	17	10.3	25	15
2	79	34	43.0	40	50.5	142	24	16.9	37	26
3	89	67	75.4	75	84.5	154	53	34.5	69	45
4	174	173	99.5	173	99.5	77	38	49.5	43	56.
Totals	411	295	72.0	314	77.0	538	132	24.6	174	32.

TABLE 4.—*Mortality Rates for Nonsurgically and Surgically Treated Hypertensive Patients Grouped According to Smithwick Cri*

	Nonsurgical Series (Smithwick)					Surgical Series (Smithwick)				
Group	No. of Cases	No. of Deaths at 4 Yr.	Mortality at 4 Yr. (%)	No. of Deaths at 4-10 Yr.	Mortality at 4-10 Yr. (%)	No. of Cases	No. of Deaths at 4 Yr.	Mortality at 4 Yr. (%)	No. of Deaths at 4-12 Yr.	Mort at Yr.
1	59	6	10	8	14	60	2	3	4	
2	115	38	33	42	37	325	39	12	70	2
3	59	34	58	42	71	115	22	19	39	3
4	63	55	87	57	90	96	50	52	63	6
Total	296	133	45	149	51	596	113	19	176	3

There is no significant difference in mortality rates between surgically and nonsurgically treated patients in Group 1. The mortality rate fo gically treated Group 2 and 3 patients is significantly lower than that of the nonsurgically treated patients, both for the first four years of observ and for the entire period of observation. The same is true for surgically treated Group 4 patients. The eventual mortality rate for Group 4 pa is high (Fig. 2).

PROGNOSIS FOR HYPERTENSIVE PATIENTS GROUPED ACCORDING TO CRITERIA OF KEITH, WAGENER, AND BARKER

Keith, Wagener, and Barker[3] of the Mayo Clinic were the first to recognize the fact that the prognosis for a hypertensive patient varies according to the status of his cardiovascular system when first examined. In outstanding communication, they showed that the p nosis varied according to the changes noted on exami tion of the eyegrounds. A series of 219 cases was divi into four groups according to eyeground changes, the mortality and survival rates for each group were culated after a five to nine year period had elapsed. patients in Group 1 had mild narrowing or sclerosi the retinal arteries. Those in Group 2 had moderat marked sclerosis of the retinal arteries, character especially by exaggeration of the arterial reflex arteriovenous compression. Group 3 contained pati with angiospastic retinitis, characterized especially edema, cotton-wool exudate, and hemorrhages in retina, superimposed on a combination of sclerotic spastic lesions in the arteries. If measurable edema the optic disks was added to this picture, the case placed in Group 4.

The mortality rates for the 219 cases of Ke Wagener, and Barker are given in Table 2. A simi group of 192 consecutively studied patients who w referred to me during the years 1940 to 1945, inclusi and who were also not operated on is included in t same table. A study of the findings indicates that the m tality rates in the two series for each group are comparable. For this reason, and in order to obtain a larger control series to compare with a similar number of consecutive cases treated surgically, these two control series have been combined, and the mortality rates are compared with those for the surgical series in Table 3. All the control patients as well as those treated surgically were followed for a minimal period of five years and a maximal period of 12 years. A study of the data in Table 3 indicates that the mortality rate for each of the four groups is significantly lower in the surgical series. These same data are presented in the form of survival curves in Figure 1. A thoracolumbar splanchnicectomy, first described in 1940, was performed on all of the patients in the surgical series. These 538 cases were operated on consecutively during the years 1938 to 1944, inclusive. It is quite clear that surgical therapy has significantly prolonged the life expectancy of these patients.

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[6] Palmer, R. S.; Loofbourow, D., and Doering, C. R.: Prognosis in Essential Hypertension: An Eight-Year Follow-Up Study of 430 Patients on Conventional Medical Treatment, New England J. Med. **239**: 990, 1948.

[7] Perera, G. A.: Diagnosis and Natural History of Hypertensive Vascular Disease, Am. J. Med. **4**: 416, 1948.

[8] Hammarström, S., and Bechgaard, P.: Prognosis in Arterial Hypertension: A Comparison Between 251 Patients After Sympathectomy and a Selected Series of 435 Non-Operated Patients, Am. J. Med. **8**: 53, 1950.

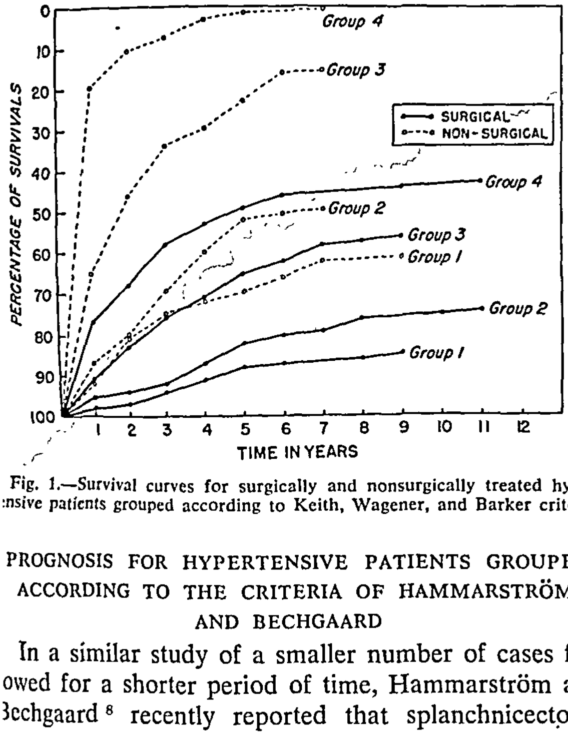

Fig. 1.—Survival curves for surgically and nonsurgically treated hypertensive patients grouped according to Keith, Wagener, and Barker criteria.

PROGNOSIS FOR HYPERTENSIVE PATIENTS GROUPED ACCORDING TO THE CRITERIA OF HAMMARSTRÖM AND BECHGAARD

In a similar study of a smaller number of cases followed for a shorter period of time, Hammarström and Bechgaard[8] recently reported that splanchnicectomy had significantly modified the prognosis for the severer forms of hypertensive cardiovascular disease. They divided their cases into four groups. Group 1 contained patients with uncomplicated hypertensive cardiovascular disease, and no cases of this sort were operated on. The prognosis for these patients was considered good, as indicated by the report of Bechgaard[5] referred to in Table 1. Group 2 includes those with marked subjective symptoms but without signs of myocardial damage. They may show left axis deviation in the electrocardiogram, and/or a relative enlargement of the left ventricle if the heart volume is within normal limits according to teleroentgenography. The retinal changes in the patients in their second group are classified as Group 1 or 2 according to Keith and Wagener. Group 3 includes those with the same eyeground changes or, in addition, retinal hemorrhages with or without signs of thrombosis of the retinal vessels. Patients in Group 3 further show one or more of the following signs of cardiovascular damage: negative T_1 in the electrocardiogram, heart volume above the predicted normal (500 ml. per square meter of body surface in men, and 450 ml. per square meter in women, or the transverse diameter of the heart greater than one-half the inner thoracic diameter), residual damage after cerebral insult, and constant albuminuria. In Group 4 they include all hypertensive patients with definite retinal exudates and/or papillary protrusion, since they found the life expectancy to be about the same if the patients in this group did or did not have papillary protrusion. Patients with cardiac decompensation at rest, auricular fibrillation, myocardial infarct, or renal insufficiency were not included in the nonoperated series. A few patients in the operated series had cardiac insufficiency and were compensated with digitalis before operation, while another minor group showed renal insufficiency before operation. All of them died, mostly within a year after operation. In order to find comparable patients for a control series, 435 nonoperated cases were selected from 130,000 records of hypertensive patients from various hospitals in Denmark and Sweden. The mortality rates for their two series are summarized in Table 5. The findings are similar to those already referred to in Table 3 and Figure 1.

TABLE 5.—*Comparison of Prognosis in 435 Unoperated Hypertensive Patients Followed 2 to 10 Years, with that in 251 Hypertensive Patients Followed 2 to 8 Years After Sympathectomy*

(Hammarström and Bechgaard, 1950)

		Unoperated			Operated		
Group	Sex	No. Cases	No. Deaths	Mortality (%)	No. Cases	No. Deaths	Mortality (%)
2	M	42	9	21.4	29	4	13.8
	F	122	21	17.2	58	0	0.0
	Totals	164	30	18.3	87	4	4.6
3	M	83	57	68.7	35	9	25.7
	F	94	44	46.8	50	8	16.0
	Totals	177	101	57.1	85	17	20.0
4	M	69	68	98.7	38	18	47.3
	F	25	24	96.2	41	16	38.9
	Totals	94	92	97.8	79	34	43.0

TABLE 6.—*Numerical Value of Various Factors Which Influence Prognosis*

	Numerical Value of Each Factor
Cerebrovascular accident without or with minor residual... Abnormal ECG Enlarged heart Impending failure P. S. P.* less than 25% in 15 min., or less than 60% in 2 hr.. Age 50 or over Mild angina	1
Cerebrovascular accident, with residual † Frank congestive failure, moderate angina P. S. P.* less than 20% in 15 min Unsatisfactory response to sedation	2
P. S. P.* less than 15% in 15 min	3
Nitrogen retention	4

* Phenolsulfonphthalein.
† Cerebral deterioration or definite involvement of arm and/or leg.

PROGNOSIS FOR HYPERTENSIVE PATIENTS GROUPED ACCORDING TO MY CRITERIA

During the years 1940 to 1946, inclusive, 296 patients were referred to me for study who were not operated on. During the years 1938 to 1944, inclusive, 596 patients

TABLE 7.—*Two Examples of Method for Determining Numerical Grade of Hypertensive Patients*

Factors Considered	Numerical Value
Example 1	
Abnormal ECG	1
Cerebrovascular accident without residual	1
P. S. P.* 20% in 15 min	1
Total	3 = Numerical grade
Example 2	
Abnormal ECG	1
Enlarged heart	1
P. S. P.* 10% in 15 min	3
Total	5 = Numerical grade

* Phenolsulfonphthalein.

TABLE 8.—*Classification of Hypertensive Patients*

Criteria for Grouping

Group	Numerical Grade	Other Factors
1	Less than 4	Eyegrounds Grade 0 or 1 No changes in cerebral, cardiac, or renal areas
2	Less than 4	Eyegrounds Grade 0 or 1, with changes in cerebral, cardiac, and/or renal areas; eyegrounds Grade 2, 3, or 4, with or without changes in cerebral, cardiac, or renal areas
3	4 or more	Resting diastolic level below 140 mm.; changes are present in cerebral, cardiac, and/or renal areas, but they do not include the following: (a) Cerebrovascular accident with marked residual (b) Frank congestive failure (c) P. S. P.* below 15% in 15 min., associated with a poor response to sedation
	4 or more	Resting diastolic blood pressure below 140 mm. combined with one or more of the following: (a) Cerebrovascular accident with marked residual (b) Frank congestive failure (c) P. S. P.* below 15% in 15 min. combined with a poor response to sedation Patients with a resting diastolic level of 140 mm. or more

Phenolsulfonphthalein.

The eyegrounds are graded according to the criteria of Keith, Wagener, and Barker. The lowest reading of diastolic pressure during the sedative test is taken to be the response to sedation. Three grains (180 mg.) of amobarbital (amytal®) sodium are given by mouth at 7, 8, and again at 9 p. m. Readings of blood pressure are taken every hour from 7 p. m. to 7 a. m. To be regarded as satisfactory, the diastolic level during the sedative test should fall to 90 mm. or less in patients with resting levels between 100 and 119 mm. For patients with resting levels between 120 and 139, the response to sedation should be a fall to 100 mm. or less. For those with resting levels of 140 mm. or more, the diastolic level should fall to 110 mm. or less. Otherwise the response to sedation is regarded as unsatisfactory.

were referred for study and were operated on. At that time, no satisfactory criteria for operation were available. These 892 patients were studied in a similar fashion, and operation was suggested to them as offering a reasonable or a slight chance for a worthwhile result according to the status of their cardiovascular systems when first studied. The majority of the patients elected to be operated on. Those who decided to follow a medical regimen make up the control series. All cases in both series have been followed for a minimal period of four years and a maximal period of 12 years.

These patients were divided into four groups, using criteria which differ somewhat from those already referred to. The plan adopted is designed to control as many of the variable factors as possible, in an attempt to make the patient material in each group as comparable as possible. Soon we shall be dealing with a much larger number of cases. More groups can then be defined, in each of which every important variable is the same. For the present, the following plan is the best we have been able to devise to deal with the number of cases under consideration. Following a careful study of the cardiovascular system as a whole, a numerical value is assigned to various factors which have a bearing on prognosis. These are summarized in Table 6. The numerical values for each factor present are totaled, and this gives the numerical grade for the patient. Two examples of how to determine the numerical grade are given in Table 7. If the numerical grade is less than 4, *the patient will be in* Group 1 or 2. If the numerical grade is 4 or more, the patient will be in Group 3 or 4. The additional factors which determine the exact group of the patient are given in Table 8.

The mortality rates for the control series are compared with those of the operated series in Table 8. A study of this table indicates that, with the exception of the cases in Group 1, the mortality rates for the surgical cases have been reduced significantly. The cases in Group 1 have persistently elevated blood pressure, with minimal or no eyeground changes and no abnormalities in the cerebral, cardiac, or renal areas. Those in the other groups have increasing amounts of cardiovascular disease. These same data are presented in the form of survival curves in Figure 2.

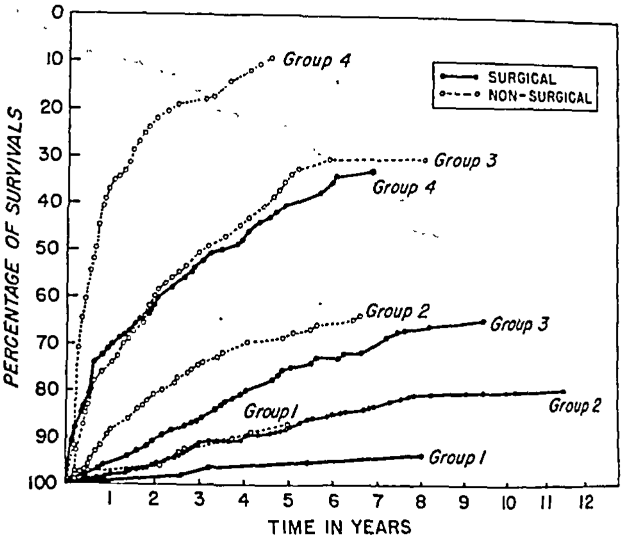

Fig. 2.—Survival curves for surgically and nonsurgically treated hypertensive patients grouped according to Smithwick criteria.

COMMENT

If patients are classified in four groups according to the criteria of Keith, Wagener, and Barker, the findings indicate that the mortality rates have been significantly lowered in all groups following thoracolumbar splanchnicectomy (Table 3, Figure 1). Previously, Woods and Peet [9] had shown this to be true for Group 4 cases.

If patients are arranged in a different fashion into various groups according to the amount of cardiovascular damage in the cerebral, retinal, cardiac, and renal areas, it appears that life expectancy has been improved, as indicated by the findings of Hammarström and Bechgaard (Table 5).

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[9] Woods, W. W., and Peet, M. M.: The Surgical Treatment of Hypertension: Comparison of Mortality Following Operation with That of the Wagener-Keith Medically Treated Control Series: A Study of 76 Cases from 5 to 7 Years After Operation, J. A. M. A. **117**: 1508 (Nov. 1) 1941.

More recently, White and others,[10] indicated that the prognosis for a small group of 50 patients with the severer cardiovascular changes was much improved after thoracolumbar splanchnicectomy, in comparison to that of a control series of 50 patients with comparable changes who had not been operated on.

If patients are arranged into four groups according to my criteria, outlined in Tables 6, 7, and 8, it is clear that the prognosis for cases in Groups 2, 3, and 4 has been significantly improved by thoracolumbar splanchnicectomy (Table 4, Figure 2). These patients had cardiovascular changes ranging from slight to severe. To date, while the mortality rate is lower for Group 1 cases treated surgically than for the control series, the difference has not as yet become statistically significant. It is expected that it will become so with a longer period of observation. Severe kidney damage, as indicated by persistent evidence of nitrogen retention, is the one finding which positively contraindicates splanchnicectomy in the more advanced stages of cardiovascular disease. The great majority of the patients treated surgically, as well as the controls, were middle-aged. Approximately 90% were under 50, and 80% were between 20 and 49 years of age.

The findings which have been presented indicate quite clearly that the prognosis for patients with hypertensive cardiovascular disease significantly improves after thoracolumbar splanchnicectomy. To date, the best results, when judged both by their significance in comparison to control cases as well as by the eventual mortality rates, have been obtained in cases falling into Groups 2 and 3 (my classification). Surgery may be employed in Group 4 cases, but because the eventual mortality rate is still very high in spite of thoracolumbar splanchnicectomy, it would seem much wiser to utilize surgical therapy earlier in the disease if it is to be considered at all. With regard to Group 1 cases, which are those having persistently elevated blood pressures without changes in the cerebral, cardiac, or renal areas, and with normal eyegrounds or with Grade 1 changes at most, surgery cannot as yet be advocated on a statistical basis. The less the cardiovascular damage, the better the prognosis with or without treatment. Reference to Table 4 will indicate that one-half of the Group 1 patients were operated on, and one-half were not. A longer period of observation will tell whether surgery should be seriously considered in such patients. In the meantime, surgery is utilized in Group 1 patients who are not doing well on medical therapy, or who for one reason or another cannot follow a medical regimen. Surgery is also given serious consideration in Group 1 patients who are young and have high resting diastolic levels, 110 mm. or more. In any case, they should be followed closely for evidence of the development of cardiovascular disease.

SUMMARY

The evidence available at present indicates quite clearly that the prognosis for patients with hypertensive cardiovascular disease ranging from slight to marked is significantly improved by thoracolumbar splanchnicectomy.

The patients who have derived the greatest benefit are those who fall into Groups 2 and 3 (my classification).

The effect of surgical treatment on prognosis affords the only reliable basis so far developed for the selection of cases for splanchnicectomy.

The survival curves for patients after they have had thoracolumbar splanchnicectomy should be useful in judging the relative merits of different forms of therapy in consecutive cases having varying amounts of cardiovascular disease when first seen.

750 Harrison Ave.

[10] White, P. D.; Dimond, E. G., and Williams, A.: A Follow-Up Study of 100 Private Hypertensive Patients with Cardiovascular Complications, J. A. M. A. 143: 1311 (Aug. 12) 1950.

PHYSIOLOGY OF GASTRIC SECRETION AND ITS RELATION TO THE ULCER PROBLEM

Lester R. Dragstedt, M.D., Harry A. Oberhelman Jr., M.D.
and
Edward R. Woodward, M.D., Chicago

An excessive secretion of gastric juice, both in the asting stomach and in response to the ingestion of food, has been found to be present in most, if not all, patients with duodenal and gastrojejunal ulcers, when appropriate methods for its detection have been employed. Observations on patients with peptic ulcer who have been treated by complete gastric vagotomy, supported and amplified by studies on experimental animals, indicate that this hypersecretion is the cause of the ulcers, is the chief factor which prevents them from healing, and that it is predominantly, if not exclusively, of nervous origin.

Hypertonicity and hypermotility of the stomach are likewise usually present in patients with duodenal and gastrojejunal ulcers, and are also of nervous origin. While there is no doubt that this hypertonicity and hypermotility contribute to the epigastric discomfort of these patients, they are probably of minor importance in the cause of ulcer or in determining chronicity.

In describing the mechanism of gastric secretion, physiologists have referred to the nervous or cephalic, the gastric, and the intestinal phases of secretion.[1] These

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[1] Babkin, B. P.: Secretory Mechanism of the Digestive Glands, Ed. 2, New York, Harper & Brothers, 1950.

terms refer to the fact that secretion by the gastric glands in the body and fundus of the stomach may be stimulated by impulses in the vagus nerves aroused reflexly by the sight, odor, or taste of food, and also by the presence of food in the stomach or intestines. In a recent experimental analysis of the relative importance of these three phases of secretion, my associates and I [2] have found that in normal dogs the nervous phase of secretion accounts for approximately 45% of the gastric juice secreted in a 24-hour period, the gastric phase about 45%, and the intestinal phase 10% or less. These estimates are not precise, since there appears to be a definite inter-relationship, at least between the nervous and gastric phases of secretion. Thus, removal of the nervous phase of secretion by complete vagotomy likewise materially reduces the gastric phase of secretion, and elimination of the gastric phase of secretion in turn reduces the effectiveness of the nervous phase. The gastric phase of secretion was found to be mediated exclusively by the mucous membrane of the antrum of the stomach, which functions as an endocrine organ for the manufacture of the gastric secretory stimulant, gastrin, when it comes in contact with food or when the antrum is moderately distended. Removal of the antrum in Pavlov pouch dogs [3] or transplantation of the antrum to the abdominal wall so that it does not come in contact with food abolishes the gastric phase of secretion. When both the nervous phase of secretion and the gastric phase are eliminated, as by complete vagotomy and removal of the antrum, secretion of gastric juice by the body and fundus of the stomach is reduced to a negligible amount, indicating that the intestinal phase of secretion is relatively unimportant.

The early gastroenterologists were aware of the fact that the acidity of the gastric content following an Ewald test breakfast in duodenal ulcer patients is usually higher than that in normal persons, and they sometimes erroneously ascribed this to hyperacidity of the gastric juice itself. Many recent studies have confirmed the older view of Pavlov, that gastric juice, both in normal persons and in ulcer patients as well, is secreted at a constant acidity when the electrolyte composition of the blood is normal. Variations in the acidity of the gastric content for the most part depend on variations in the relative amounts of gastric juice and such neutralizing substances as swallowed saliva, food, mucus from the pyloric antrum, and regurgitated alkaline duodenal juices. Hypersecretion, rather than hyperacidity, of the gastric juice is thus the factor that raises the concentration of free hydrochloric acid in the gastric content of ulcer patients.

METHODS FOR STUDYING GASTRIC SECRETION

Quantitative methods for studying the secretion of gastric juice are usually necessary to demonstrate this abnormal gastric secretion, and for this reason should replace determinations of the free acid concentration in fractional samples of the gastric content, which give little or no information concerning the actual amount of hydrochloric acid manufactured by the stomach. It is likely that this deficiency in the usual procedures for gastric analyses is responsible for the low repute of this clinical test and has caused some experienced physicians to abandon it as of little value. If, however, quantitative methods of collection are applied, data obtained from gastric analyses are of definite value in the diagnosis of duodenal ulcers and, more especially, in forecasting the success of medical management and the eventual necessity of surgical treatment. Thus, we have recently seen two patients who secreted 330 and 337 mEq. of HCl in the 12-hour night period, as compared with 18 mEq., the normal average. It is very probable that this large secretion of acid could not be controlled by any type of medical management the patients could long tolerate, and that surgical measures to reduce the secretion would become inevitable.

The most convenient and satisfactory method that we have found for studying the continuous or fasting secretion of gastric juice in patients has been its recovery by continuous aspiration of an intranasal gastric tube. In employing this procedure it is our custom [4] to place the tube under fluoroscopic control in the lower portion of the stomach and to maintain constant suction with the Wangensteen apparatus from 9 o'clock in the evening until 9 the next morning. During this 12-hour period the patient is shielded from the sight and the odor or taste of food, and since all food has been removed from the stomach by a preliminary gastric lavage as well as by the period of fasting, the usual physiological stimuli for gastric secretion are absent. Some gastric secretion, of course, escapes through the pylorus, and many tests are worthless because of incomplete samples due to plugging of the tube with mucus or because of other accidents. The sample of gastric juice obtained is thus always minimum, and when hypermotility of the stomach is present, as occurs during the insulin test, the amount recovered may be so small as compared with the total amount secreted as to render the determination of little value. The volume and free hydrochloric acid of the night secretion are then measured, and if the volume of secretion is expressed in liters, and the free acid concentration in clinical units, the product of the two represents the free acid present in terms of milliequivalents.

This quantitative method for studying the continuous or fasting secretion may also be employed to determine the secretory response of the stomach to such stimuli as histamine and insulin hypoglycemia. These tests are conveniently performed in the morning when the intragastric tube is still in place following collection of the night secretion. One milligram of histamine acid phosphate is given subcutaneously, and the gastric secretion collected by continuous aspiration for a period of 60 minutes. The product of the volume of juice by the free acid concentration represents the acid output in response to a standard dose of histamine A similar technique may be employed to determine the gastric secretory response to insulin hypoglycemia, in which case it has been our custom to employ an intravenous injection of 20 units of regular insulin and a two-hour period of collection with determinations of the blood sugar to ascertain the degree of hypoglycemia produced.

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[2] Dragstedt, L. R.; Woodward, E. R.; Storer, E. H.; Oberhelman, H. A., Jr., and Smith, C. A.: Quantitative Studies on Mechanism of Gastric Secretion in Health and Disease, Ann. Surg. **132**: 626, 1950.

[3] Woodward, E. R.; Bigelow, R. R., and Dragstedt, L. R.: Effect of Resection of Antrum of Stomach on Gastric Secretion in Pavlov Pouch Dogs, Am. J. Physiol. **162**: 99, 1950.

[4] Woodward, E. R.; Harper, P. V., Jr.; Tovee, E. B., and Dragstedt, L. R.: Effect of Vagotomy on Gastric Secretion in Man and Experimental Animals, Arch. Surg. **59**: 1191 (Dec.) 1949.

With the quantitative method of measuring gastric secretion, one of us (L. R. D.) and Owens reported in 1943[5] hat a hypersecretion of gastric juice occurred in the fastng stomach of duodenal ulcer patients, and that this was educed below the levels found in normal persons by complete division of the vagus nerves to the stomach. Many subsequent studies, both in our own laboratories and elsewhere, have confirmed these early observations. Thus 81 normal persons, or surgical patients without gastrointestinal disease, were found to secrete an average of 18 mEq. of HCl in the 12-hour night secretion, whereas when tested by the same method, 135 duodenal ulcer patients secreted 60 mEq., or almost four times as much. Following complete vagotomy in 70 of these patients, the output of hydrochloric acid was reduced o 11 mEq., or considerably less than that put out by he normal person.

THE NERVOUS PHASE OF GASTRIC SECRETION

Welin and Frisk, in 1936,[6] demonstrated that the gastric glands in duodenal ulcer patients respond to hypolycemia produced by a standard dose of insulin by a reater output of hydrochloric acid than occurs in normal ersons. This was confirmed by Ihre in 1939;[7] and recently by Winkelstein,[8] and in our own laboratories. Duodenal ulcer patients also display an exaggerated gastric secretory response to a standard dose of histamine. Thus, two of us (L. R. D. and H. A. O.)[9] found that 18 ormal males secreted an average of 13.2 mEq. of HCl in period of 60 minutes after the subcutaneous injection f 1 mg. of histamine. In contrast to this, a group of 15 males with peptic ulcer put out 27 mEq. of HCl, or lmost twice as much as the normal person, in response to the same dose of histamine. Complete vagotomy abolhes the gastric secretory response to insulin hypolycemia, indicating that this form of stimulation is ntirely central. It is interesting in this connection that complete vagotomy also markedly decreases the gastric ecretory response to a standard dose of histamine. Thus, he group of ulcer patients described above, who secreted n average of 27 mEq. of HCl in response to a standard dose of histamine, put out an average of only 5.5 mEq. of free HCl after division of the vagus nerves to the tomach. This demonstration that complete vagotomy educes the gastric secretory response to a humoral stimuant of gastric secretion suggests that the secretory reponse to the humoral agent or agents released by the ngestion of food is likewise reduced. This conclusion is supported by the frequent finding of almost complete absence of free HCl in the gastric content of vagotomized patients for a prolonged period after the ingestion of food.

Although work on the lower animals has demonstrated that the nervous phase of gastric secretion is mediated exclusively by the vagus nerves and can be abolished completely when the vagus fibers are divided, it is not yet possible to eliminate the nervous phase of secretion in all patients by surgical methods currently employed. This failure to secure a complete or near-complete vagotomy in all patients is the chief defect in this operative procedure. It is almost certainly due to the technical inability of the surgeon to find and divide all of the vagus nerves to the stomach and is very largely overcome as the surgeon acquires increasing experience and the conviction that all fibres must be sought out and divided. Meticulous denervation of the lower 3 in. of the esophagus by a transabdominal, transdiaphragmatic operation has thus far proved to be the most successful method in our experience. The data summarized in Table 1 present our total experience to date on the efficacy of this procedure in producing a complete vagotomy as evidenced by a negative gastric secretory response to insulin hypoglycemia. In 470 duodenal ulcer patients subjected to vagotomy, the insulin test, when performed 10 days after the operation, gave a positive response in 10% of the patients. This represents a minimum figure since some patients fail to respond to insulin hypoglycemia immediately after surgery because of trauma to the vagus nerves, and when tested three to six months later give a positive response. In 81 patients in whom the insulin test was performed one year following the operation, 28% yielded a positive response, indicating preservation of some vagus innervation to the stomach. A similar high percentage of positive insulin tests was obtained in smaller groups of patients examined two, three, four, and five years after the operation. These data are, of course, significant only with respect to the particular group of patients examined and not to the group as a whole. Dissatisfaction with the operation has been largely due to incomplete vagotomy, and since patients who have failed to secure a perfect result are easier to bring back to the hospital for subsequent examination and secretory studies, an element of selection necessarily exists.

TABLE 1.—*Early and Late Effect of Vagotomy on Gastric Secretory Response to Insulin Hypoglycemia in Duodenal Ulcer Patients*

Time of Test After Vagotomy	Number of Patients Tested	Patients with Positive Response	Patients with Equivocal Response	Patients with Negative Response	Per Cent Positive
10 days	470	47	35	388	10
1 yr.	81	23	12	46	28
2 yr.	55	17	4	34	31
3 yr.	66	18	5	43	27
4 yr.	33	11	3	19	33
5 yr.	15	8	1	6	53

While a positive response to insulin hypoglycemia, in our opinion, indicates the presence of intact vagus secretory fibers to the stomach, such a positive test does not by any means indicate that the nervous phase of secretion has not been eliminated. The best evidence that we have in support of this statement has been obtained on experimental animals. We have several times observed Pavlov pouch dogs who gave a positive response to insulin hypoglycemia, thus indicating the presence of some vagus innervation to the isolated stomach pouch. However, when the vagus nerves were subsequently divided in the chest and the secretory response to insulin hypoglycemia abolished, the total output of gastric juice from the isolated stomach was not reduced. We have taken this to indicate that insulin hypoglycemia is a more potent stimulus to the gastric secretory fibers in the vagus than is the sight, odor, or taste of food, and that when a meagre vagus innervation is present, a secretory response is obtained only to the stronger stimulus. Support for this conclusion is obtained from the data summarized in Table 2. This shows that the amount of hydrochloric acid secreted in the 12-hour nocturnal gastric secretion was reduced from 79 to 98% of the preoperative level, and this reduction was just as marked in the patients examined after two, three, four, five, six, and seven years as it was 10 days after the operation.

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[5] Dragstedt, L. R., and Owens, F. M., Jr.: Supradiaphragmatic Section of Vagus Nerves in Treatment of Duodenal Ulcer, Proc. Soc. Exper. Biol. & Med. **53:** 152, 1943.

[6] Welin, G., and Frisk, A. R.: The Amount and Acidity of Gastric Secretion in Man and an Interpretation of Hypoacidity and Achylia, Acta med. scand. **90:** 543, 1936.

[7] Ihre, B. J. E.: Human Gastric Secretion: A Quantitative Study of Gastric Secretion in Normal and Pathological Conditions, London, Oxford University Press, 1938.

[8] Winkelstein, A., and Hess, M.: Effect of Insulin Hypoglycemia on Gastric Secretion in Duodenal Ulcer and Controls, Gastroenterology **11:** 326, 1948.

[9] Oberhelman, H. A., Jr., and Dragstedt, L. R.: Effect of Vagotomy on Gastric Secretory Response to Histamine, Proc. Soc. Exper. Biol. & Med. **67:** 336, 1948.

TABLE 2.—*Early and Late Effect of Vagotomy on Fasting Nocturnal Gastric Secretion in Duodenal Ulcer Patients*

Time of Test After Vagotomy	Number of Patients Tested	Average 12-Hour Output of Free HCl in mEq.		Per Cent Reduction in HCl Output
		Before Vagotomy	After Vagotomy	
10 days	309	63	5	87
1 yr.	37	75	14	79
2 yr.	30	79	9	89
3 yr.	37	74	7	91
4 yr.	21	74	11	84
5 yr.	10	65	3	97
6 yr.	4	89	2	98
7 yr.	1	102	16	84

ULCER RECURRENCE AND NIGHT GASTRIC SECRETION

Abolition of the excessive night secretion of gastric juice is the most important alteration in the physiology of the stomach produced by vagotomy in duodenal ulcer patients, both from the standpoint of predicting healing of the lesion and the prevention of recurrence. The data summarized in Table 3 show that there is a definite relation between the degree of reduction in the nocturnal gastric secretion after vagotomy and the response to the insulin test. In a series of 307 patients where both preoperative and postoperative night secretion was carefully determined and the insulin test performed, 30 patients secured a reduction in the free acid output of 60% or less. The distribution is indicated in the table. Thirty per cent of these patients displayed a positive insulin test following the operation. The remaining 277 patients secured a reduction in the night secretion ranging between 60% and 100%, or complete anacidity. In this group, 19, or only 7% of the total, showed a positive insulin test.

TABLE 3.—*Relation of Reduction in Nocturnal Gastric Secretion in Duodenal Ulcer Patients After Vagotomy to the Secretory Response to Insulin Hypoglycemia*

Per Cent Reduction in HCl Output in 12-Hr. Night Secretion as Compared with Preoperative Levels	Number of Patients	Patients with Positive Insulin Tests	
		No.	%
0- 20	11	4	36
20- 40	6	2	33
40- 60	13	3	23
60- 80	33	5	15
80-100	95	7	7
100 (No free acid)	149	7	4.7
Total	307	28	9

The relation of recurrence of ulcer to reduction ir
nocturnal gastric secretion and the insulin test ;
vagotomy for duodenal ulcer is summarized in Tab
It is quite clear that patients with a negative insulin
and a marked reduction in the output of free hydroch
acid in the night secretion have the best chance of s
ing healing of the lesion following vagotomy and i
maining free of subsequent recurrence. Of a tot
516 patients in whom vagotomy was performed for
denal ulcer in this clinic between 1943 and 1950,
developed in 34, or 6.6%, a recurrent duodenal
stomal ulcer following the operation. Table 4 pr
an analysis of 111 patients from this group in whicl
and postoperative secretory studies were com
There was a higher incidence of recurrent ulcers i
group (17%) than in the series as a whole, k
because it is easier to get patients who have had an
isfactory result to return to the hospital for further
than patients who have remained entirely well.
patients secured a reduction in the output of hydroc
acid in the nocturnal gastric secretion of less than
In all five of these recurrent ulcers developed, and i
of them the vagotomy was incomplete, as evidenc
a positive response to insulin hypoglycemia. Eigh
of the group secured a reduction in the output c
hydrochloric acid in the nocturnal secretion of 8
greater, and of these, in six recurrent ulcers devel
and 20 had an incomplete vagotomy, as evidenc
the insulin test. In 28 patients with recurrent ulce
insulin test of gastric secretion was positive in 8 pa
equivocal in 5, and negative in 15, when perform
days after the vagotomy. In 25 patients with rec
ulcer the insulin test of gastric secretion was posi
22, equivocal in 2, and negative in only 1, when t
was performed one to seven years after the ope

TABLE 4.—*Relation of Recurrence of Ulcer to Reduc
Nocturnal Gastric Secretion After Vagotomy for Duod
Ulcer in a Selected Series of Patients**

Per Cent Reduction in HCl Output in 12-Hr. Night Secretion	Number of Patients	Recurrent Ulcers	P Re to I gl
0- 20	5	5	
20- 40	1	0	
40- 60	3	0	
60- 80	15	6	
80-100	23	2	
100 (No free acid)	62	4	

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* These data were obtained from 111 patients with duodenal
whom pre- and postoperative secretory studies were complete. T
a higher incidence of recurrence of ulcers in this group (17%) th
series as a whole (6.6%).

HYPERSECRETION OF GASTRIC JUICE AS A CAU
DUODENAL ULCER

In an examination of the theory that ulcers a
to the corrosive and digestive properties of the
content, at least two factors call for consider
namely, the resistance of the mucous membrane a
intensity of the chemical irritation by the gastric
tent. The corrosive properties of the gastric conte
the most part are due to the hydrochloric acid and p
of the gastric juice and are markedly increased
hypersecretion is present. Food, mucus, and regurg
duodenal content must be regarded as protecti
buffering material. The observation, repeatedly

med, that gastric secretion, and hence the corrosive operties of the gastric content in patients with gastric er, are within normal limits, indicates that the impornt cause of these lesions must be a local decrease in e resistance of the gastric wall to peptic digestion. is decrease in resistance may in turn be due to thromsis or embolism of the gastric arteries, as called for the theory of Virchow and Hauser. We have encouned three cases in which such thrombosis was found.

Hypersecretion of gastric juice is regularly found in tients with duodenal ulcer. The corrosive properties of gastric content in these patients are greater than norl so that it is necessary to raise the question: can a nple increase in the corrosive properties of the gastric ntent produce an ulcer without local decrease in resistce of the gastric or duodenal wall? Data from the perimental laboratory indicate that the mucous memane of the stomach, duodenum, esophagus, or jejunum ll succumb to the digestant action of pure gastric juice to a gastric content consisting predominantly of gastric ce.[10] Although it is probable that a similar result would cur in man, it is not possible at the present to state at spontaneously occurring duodenal ulcers are due clusively to the increased corrosive properties of the stric content rather than to a combination of this factor d a local decrease in resistance which might at least termine the site and size of the ulcer. Less difficulty ses in analyzing the pathogenesis of gastrojejunal ulcer, ere it is clear that exposure to the gastric content in new location causes the disease. One important fact s come to light as a result of both clinical observation d animal experimentation, namely, that stoma ulcer curs only when a hypersecretion of gastric juice exists. e secretion of gastric juice is within normal limits or pressed in patients with gastric ulcers or with carcima in the region of the pylorus. Gastrojejunal ulcers ely or never occur following gastroenterostomy in se patients. Stoma ulcers rarely or never occur folving gastroduodenostomy or gastrojejunostomy in norl dogs The complication is most commonly seen in n following gastroenterostomy, in patients with duonal ulcer associated with marked hypersecretion. It curs in dogs following gastroenterostomy or gastroodenostomy if a hypersecretion of gastric juice is perimentally produced. This may be done by the imntation of histamine and beeswax into the subcutanes tissues as demonstrated by Wangensteen and his sociates [11] or by causing an experimental hyperfunction the gastric antrum, a recent finding in our laboratory.[12]

In quantitative secretory studies on dogs with isolated eidenhain pouches of the body and fundus of the stomh, it was found that transplantation of the antrum into e abdominal wall so that it could not come in contact ith food markedly decreased or abolished the secretion gastric juice from the isolated pouch. This secretion as subsequently returned to approximately the normal vel when the antrum was reimplanted into the duodeum as a diverticulum. When, however, it was reimlanted into the colon, the secretion of gastric juice from e isolated pouch was increased to approximately twice e normal level, and this increase persisted until the ntrum transplant into the colon was removed. When ustained hypersecretion of gastric juice due to hyperfunction was produced by this method, it was then found that stoma ulcers occurred in 80% of animals following gastrojejunostomy and in 20% of animals following gastroduodenostomy.

In 1927 Silbermann [13] produced a hypersecretion of nervous origin with ulcer formation in dogs by repeated sham feeding experiments in animals provided with a double esophagostomy. In 1935 I [14] reported that ulcers regularly develop in the totally isolated stomach of the dog if the vagus innervation to the stomach is carefully preserved. Since ulcers never occur in such preparations when the vagus nerves have been divided, these ulcers may be considered to be predominantly of nervous origin. With this experimental demonstration, that a hypersecretion of gastric juice with ulcer formation may result from exaggerated activity of either the nervous phase of secretion or the hormonal or antrum phase, it becomes of importance to determine whether the hypersecretion present in patients with duodenal ulcer is of nervous or antrum origin. Data alluded to previously in this paper which indicate that the hypersecretion of gastric juice in duodenal ulcer patients is abolished in up to 98% of instances by vagotomy provide strong support to the conclusion that this hypersecretion is usually of nervous origin. This is supported by the clinical observation made when gastrectomy was first introduced that simple removal of the gastric antrum was not sufficient to prevent a high incidence of subsequent stoma ulcers, and more extensive resections came into vogue. The fact, however, that antrum hyperfunction with hypersecretion can be produced in experimental animals, and that this hypersecretion may cause typical progressive ulcers in a large percentage of cases, makes it necessary to scrutinize patients with this possibility in mind.

The exaggerated gastric secretory response of duodenal ulcer patients to both humoral and nervous stimulation indicates that the gastric glands or the local neuroglandular complexes of these patients are hyperirritable or hypersensitive to normal physiological stimuli. Is this peripheral hypersensitivity the fundamental secretory abnormality that must be corrected, or is the disease of central nervous origin? The observation that vagotomy markedly reduces the gastric secretory response of dogs as well as ulcer patients to a standard dose of histamine suggests that the sensitivity of the gastric glands is normally due to the tonic effect of the vagus and that this sensitivity is excessive in ulcer patients because of a hypertonus in these nerves.

Recognition of the exaggerated gastric secretory response of duodenal ulcer patients to both humoral and nervous stimulation is recent, and has not received extensive study. Presumably, this heightened response indicates that the gastric glands or the local neuroglandular complexes in these patients are hypersensitive or hyperirritable. The observation[9] that vagotomy markedly reduces the gastric secretory responses of total pouch dogs to a standard dose of histamine suggests that the sensitivity of the gastric glands is normally dependent on the tonic effect of secretory fibers in the vagus nerves. This sensitivity may be excessive in ulcer patients because of hypertonus in these nerves or there may be a continued bombardment of the gastric glands by secretory nerve impulses. The increased incidence of duodenal ulcer in persons whose occupations subject them to nervous tension and strain and the exacerbation of ulcer symptoms under such conditions have led to the characterization of this disease as of psychosomatic origin. Proof of this contention is difficult to obtain. It is attractive to speculate that in some way the tensions and emotions of competitive effort arouse a hypertonus in the vagus secretory mechanism, and that it is in this way that the central nervous system plays a role in the disease. The possibilities of artifically induced tension states in aggravating the disease and of psychotherapy in alleviating it ought to be reexplored, using quantitative studies on the fasting gastric secretion as an objective criterion.

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SUMMARY

The nervous or cephalic phase of gastric secretion is mediated by the vagus nerves, and is permanently abolished by complete vagotomy. The gastric phase of secretion is mediated by the antrum of the stomach which functions as an endocrine organ for the manufacture of the gastric secretory excitant, gastrin. The gastric phase is eliminated by complete removal of the antrum or by transplanting the antrum to the abdominal wall so that it does not come in contact with food. In normal animals the nervous phase of secretion accounts for about 45% of the gastric acid produced in a 24-hour period, the gastric or antrum phase about 45%, and the intesti phase 10% or less. When the nervous and gastric phas of secretion are eliminated by vagotomy and antrum r section, the secretion of acid by the body and fundus the stomach is reduced to a negligible amount. In expe mental animals a hypersecretion of gastric juice of n ous origin with ulcer formation can be produced in vag innervated total-pouch dogs by draining the gast secretion to the exterior instead of into the intesti tract. A similar hypersecretion with ulcer formation due to hyperfunction of the gastric antrum may be p duced in experimental animals by transplanting antrum into the colon. A hypersecretion of gastric juic regularly found in patients with duodenal and gast jejunal ulcers. This hypersecretion is usually of nerv origin and may be reduced to normal or subnormal lev in 97% of patients by an adequate transabdominal sup diaphragmatic section of the vagus nerves. Removal the gastric phase of secretion in duodenal ulcer patie by resection of the antrum is not regularly followed b marked reduction in secretion and the high incidence stoma ulcer following this procedure is further evide that the hypersecretion is not of antrum or humoral gin. Failure to secure healing of the ulcer or recurre in our experience has been almost always associated w an incomplete vagotomy, as revealed by repeated posit insulin tests six months or later after the operation, persistence of the nocturnal hypersecretion. The perce age of incomplete vagotomies steadily decreases as surgeon gains experience, but is not eliminated present techniques, and this constitutes the chief we ness in this method of surgical therapy.

950 E. 59th St.

CLINICAL EVALUATION OF METHANTHELINE (BANTHINE®) BROMIDE IN GASTROENTEROLOGY

G. Gordon McHardy, M.D., Donovan C. Browne, M.D., Frank H. Marek, M.D., Robert McHardy, M.D.
and
Swan Ward, B.S., New Orleans

Clinical evaluation of any new drug is hazardous. This invariably is true when the drug is used to influence the physiology of the gastrointestinal tract, where an early affirmation of efficacy frequently is negated by extensive and competent trial. Time and astute observation by critical clinicians establish the status of a therapeutic agent, confirming or denying those claims—chemical, physi and physiological—which emanate from the laborator In the final analysis, it is the clinician who establishes virtues of a product whose potentialities have been dorsed by the research departments.

Methantheline (banthine®) bromide, introduced a remedy for peptic ulcer,[1] after being received with p mature enthusiasm, encountered rigid conservatism d ing its probationary period. No truly disparaging repo on this new anticholinergic have been recorded. From period of adequate and critical evaluation methantheli bromide emerges as an adjunct to ulcer management a is alleged to influence many gastrointestinal functions.[2] has inspired extensive laboratory and clinical investig tions, stimulating a keener professional insight and ther peutic approach to the physiology of gastrointestin function.

From the Browne-McHardy Clinic.

Aided by a grant from the Medical Group Research Fund.

Methantheline (banthine®) bromide was generously supplied by Irwin C. Winter, M.D., Clinical Research Division, G. D. Searle & Company, Chicago, and bentyl® hydrochloride was generously supplied by Raymond C. Pogge, M.D., Clinical Research Division, William S. Merrell Company, Cincinnati.

Read before the Section on Gastro-Enterology and Proctology at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] Grimson, K. S.: A Clinical Trial of Banthine in Cases of Peptic Ulcer, Gastroenterology **14**: 583, 1950. Grimson, K. S.; Lyons, C. K., and Reeves, R. J.: Clinical Trial of Banthine in 100 Patients with Peptic Ulcer, J. A. M. A. **143**:873 (July 8) 1950. Brown, C. H., and Collins, E. N.: The Use of Banthine in the Treatment of Duodenal Ulcer: Preliminary Report, Cleveland Clin. Quart. **17**: 234, 1950.

This anticholinergic, a quaternary ammonium salt beta-diethylaminoethyl xanthene-9-carboxylate-methoromide) has dual effectiveness; it inhibits acetylcholine berated at the postganglionic parasympathetic nerve ndings and it blocks acetylcholine transmission through utonomic ganglia. Hambourger[3] and his associates, emhasizing these manifold activities of methantheline, inicated the potentialities of curariform effect. Winter[4] as postulated interference with afferent sensory imulses.

An extensive bibliography substantiates the potency of ethantheline on physiology of the gastrointestinal tract. rom our observations a practical clinical evaluation of ethantheline in relation to secretion, motility, healing, nd pain relief has been made. As far as was possible, all f our studies were controlled with atropine, bentyl® hyrochloride (beta-diethylaminoethyl 1-cyclohexylcycloxanecarboxylate hydrochloride), and placebos. Alough we appreciate the objective influence of placebos at was demonstrated by Wolf, we nevertheless feel stified in their inclusion in such studies.

SECRETION

Although knowledge of methantheline's influence on cretory function is incomplete, certain observations e conclusive, confirmed, and acceptable. Salivation is iformly inhibited. The inhibition was definite in 86% 200 patients studied, and was directly related to sensivity of the patient and dosage of the drug. This effect transient. Tolerance to the drug often is acquired with- 72 hours. Ten normal fasting men had an average rced expectorable oral salivation of 32 cc. in an hour. hirty minutes after administration of 100 mg. of meththeline (parenteral) they were able to produce only cc. of saliva in an hour. After these patients were on ethantheline therapy for 72 hours, salivation averaged 6 cc. in an hour. Although this effect is of interest, it is gnificant in proof of action and amelioration. Halouek[5] has stressed its aid to the oral surgeon. After seven ays of therapy with the drug, there was no demonstrable hibition of saliva. In 10 cases of infectious parotitis ere was comparable salivary depression without influnce on the course of the disease. In all cases the salivary ecretions remained acid. Bentyl® (50 mg.) showed an ppreciable salivary inhibition in only 22% of patients.

Esophageal intubation in five instances of neoplastic sophageal obstruction and in five of obstructive cardiopasm revealed an insignificant diminution in both series rom a 24-hour average suction of 326 cc. of saliva luring the control period when no drug was given to 75 cc. when methantheline was given in 100 mg. mounts parenterally every four hours. In this study bstinence from swallowing saliva was exacted. The secretions were alkaline throughout. This limited observaion apparently confirmed an anticipated absence of nethantheline's influence on esophageal secretion. Atropine and bentyl® likewise exerted no obvious esophageal influence.

Gastric secretory studies though voluminous are inconclusive. Hormone, uropepsin, and lysozyme influence have not been established. To a variable degree the ganglionic blocking action of methantheline controls the volume of gastric secretion apparently more uniformly than it controls acid production. The claims of inhibition of gastric secretion in volume, titratable acidity, and nocturnal secretion, together with modifications of the secretory response to insulin hypoglycemia, have been modified. If vagal inhibition is achieved by methantheline, apparently either a secretory response may result from a vagal action other than cholinergic, or a dose adequate to cause full inhibition cannot be given. The latter seems unlikely in the presence of evidence of profound atropine-like effect in our studies.

Ten selected normal male students were used for controls because of their normal gastric secretory responses. Twelve-hour secretory studies with parenteral methantheline (100 mg. every four hours) showed a uniform and definite depression as to volume but slight effect on titratable free acid as illustrated.

A comparable study was done in 10 men, each with active acute duodenal ulcer (symptomatology of less than 12 months' duration). The secretory depressive effect was significant.

In 10 patients, each with active duodenal ulcer accompanied by marked nocturnal pain but no radiologic evidence of obstruction, there was inconstant but definite methantheline secretory depression. In explanation of inconsistency it is suggested that some persistent hypersecretors were more disturbed, remained awake, and obviously were highly emotional.

In a study of 10 cases we were unable by the use of arenteral methantheline to modify appreciably the secretory response to insulin hypoglycemia and to histamine stimulation in any way other than that of an insignificant diminution in volume.

In 10 selected chronic duodenal ulcer patients of the typical "intractable variety" the methantheline response

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[2] Footnote 1. (*a*) Plummer, K.; Burke, J. O., and Williams, J. P.: Clinical and Experimental Observations on the Effect of Banthine in Peptic Ulcer, and Chronic Ulcerative Colitis, South. M. J., to be published. (*b*) Winkelstein, A.: Banthine® in the Therapy of Peptic Ulcer, correspondence, J. A. M. A. **144**: 1501 (Dec. 23) 1950. (*c*) McHardy, G., and others: An Evaluation of Banthine in Ulcer Management, New Orleans M. & Surg. J. **103**: 380-386, 1951. (*d*) Longino, F. H.; Grimson, K. S.; Chittum, J. R., and Metcalf, B. H.: An Orally Effective Quaternary Amine, Banthine, Capable of Reducing Gastric Motility and Secretions, Gastroenterology **14**: 301, 1950. (*e*) Chapman, W. P.; French, A. B., and Hoffman, P. S.: Multiple Balloon Kymographic Recordings of the Comparative Action of Banthine, J. Clin. Invest. **29**: 6, 1950. (*f*) Golden, R.: Some Clinical Problems in Small Intestinal Physiology: Mackenzie Davidson Memorial Lecture, Brit. J. Radiol. **23**: 390, 1950. (*g*) Walters, R. L.; Morgan, J. A., and Beal, J. M.: Effects of β-Diethylaminoethyl Xanthene 9-Carboxylate Methobromide (Banthine) on Human Gastrointestinal Function, Proc. Soc. Exper. Biol. & Med. **74**: 526, 1950. (*h*) Benjamin, F. B.; Rosiere, C. E., and Grossman, M. I.: A Comparison of the Effectiveness of Banthine and Atropine in Depressing Gastric Acid Secretion in Man and the Dog, Gastroenterology **15**: 727, 1950. (*i*) Smith, C. A.; Woodward, E. R.; Janes, C. W., and Dragstedt, L. R.: The Effects of Banthine on Gastric Secretion in Man and Experimental Animals, Gastroenterology **15**: 718, 1950. (*j*) Shingleton, W. W.; Fawcett, B., and Vetter, J. S.: Pancreatic Secretion and Response to Secretion after Vagotomy and Sympathectomy, read before the Clinical Congress of the American College of Surgeons, Boston, Oct. 23-27, 1950. (*k*) Asher, L. M., and Cohen, S.: The Effect of Banthine on the Central Nervous System, Gastroenterology **17**: 178, 1951. (*l*) Kern, F., Jr.; Almy, T. P., and Stolk, N. J.: Experimental and Preliminary Study of the Effect of a New Quaternary Amine, Banthine, upon the Human Colon, Gastroenterology **17**: 198, 1951. (*m*) Asher, L. M.: Gastroscopic Observations on the Effect of Banthine on the Human Stomach, Gastroenterology, to be published. (*n*) Grimson, K. S.; Lyons, C. K.; Watkins, W. T., and Calloway, J. L.: Successful Treatment of Hyperhidrosis Using Banthine,® J. A. M. A. **143**: 1331 (Aug. 12) 1950. (*o*) Golden, A.: Personal communication to the author.

[3] (*a*) Hambourger, W. E.; Cook, D. L.; Winbury, M. M., and Freese, H. B.: Pharmacology of Beta-Diethylaminoethyl Xanthene-9-Carboxylate Methobromide (Banthine) and Chloride, J. Pharmacol. & Exper. Therap. **99**: 245, 1950. (*b*) Hambourger, W. E.; Cook, D. L., and Green, D. M.: Antagonism of Cholinergic Trial by Beta-Diethylaminoethyl Xanthene-9-Carboxylate Methobromide (Banthine Bromide), Federation Proc. **9**: 281, 1950.

[4] Winter, I. C.: Personal communication to the author.

[5] Haloubek, J. E.: Personal communication to the author.

was surprisingly dramatic when compared with the acute duodenal ulcer series.

Comparable gastric ulcer patients were not available for such a complete survey. However, in 10 hyperchlorhydric benign gastric ulcer patients, studies were conducted for secretory inhibition with the charted favorable response.

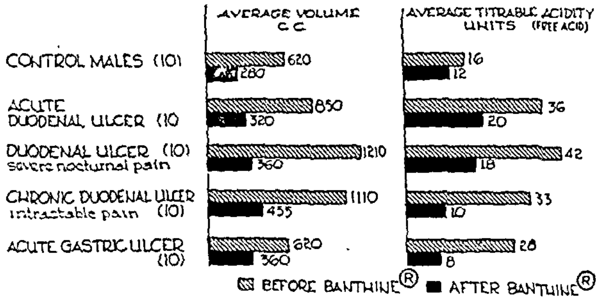

Chart 1.—Influence of methantheline (banthine®) bromide on gastric secretion during continuous suction for 12-hour periods during the night. Methantheline was given parenterally every four hours *in doses of 100 mg.*; during the control period placebo hypodermics were given every four hours.

In these gastric secretory studies, when 1/75 grain (about 0.8 mg.) of atropine and 50 mg. of bentyl® hydrochloride were used as equivalent to 100 mg. of *methantheline*, they were of approximate efficiency in volume secretory depression and without any influence on titratable acidity.

In 4 patients with duodenal and 3 with jejunal fistulas *and* 10 with a permanent ileostomy, a 24-hour quantitative study of excretion was made with the patient restricted to a 24-hour oral fluid intake of 2,500 cc.; methantheline, 100 mg. parenterally administered every four hours, did not appreciably alter fistula *output*. In the ileostomy patients there was an appreciable and constant influence in an average of 33%. Atropine in doses up to 1/75 grain showed no influence whatever. Bentyl® in 50 mg. doses, like methantheline, was limited in its influence on ileostomy output, but it was of equivalent efficiency.

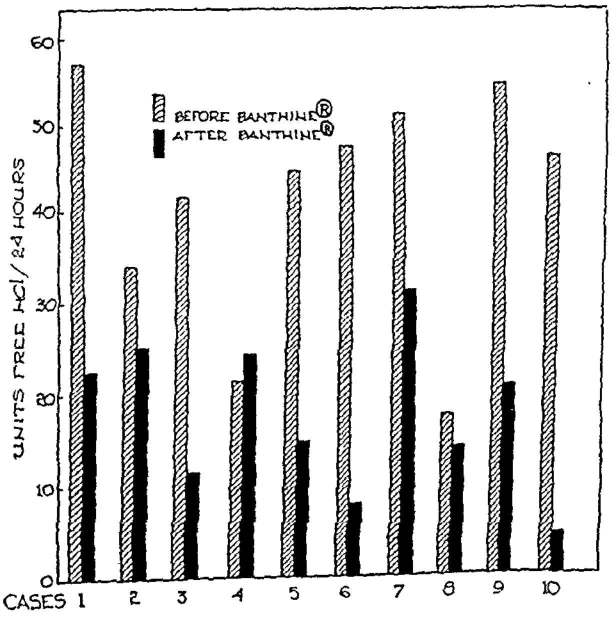

Chart 2.—Variable responses in nocturnal pain in duodenal ulcer patients.

Two patients in whom pancreatic fistulas developed as a complication to a modified Whipple pancreatic resection, *two in whom* the same condition developed as complication to a gastric resection, and one patient i whom this condition resulted from inadvertent surge for acute pancreatitis were studied from a volumetr view. There was dramatic inhibition of fistulous draina to an average of 60% during a 72-hour period of thera with 100 mg. of methantheline parenterally administer every four hours. All patients recovered. In a single ad *tional* case *there* was *no* apparent benefit from metha theline. Neither atropine nor bentyl® could be credit with so definite an influence.

Four patients with choledochostomy drainage sub quent to *cholecystectomy* for choledocholithiasis show an average increase in bile excretion to 240 cc. in hours when 100 mg. of *methantheline* was administe every 4 hours. There was no similar effect from atrop or bentyl.® Choleretics were *40%* more efficient. At pine and bentyl® were ineffective. No *adequate* expla tion for this action is available; however, influence duodenal motility might be contributory.

There was an appreciable influence on colostomy put at different colon levels by methantheline, atrop or bentyl.®

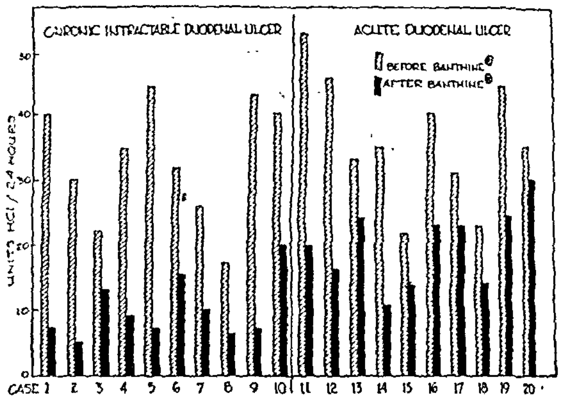

Chart 3.—Responses in chronic intractable ulcer (Cases 1-10) and duodenal ulcer (Cases 11-20).

MOTILITY

Since contraction of the gastrointestinal tract is trolled by cholinergic nerves, methantheline *would* to be an established specific for any dysfunction rel to *hypertonicity*. This theory is tangible but suscept motor responses to peripheral anticholinergics an those acting on the ganglia vary.

As anticipated, the hypertonicity of esophageal sp *was accentuated*. In 18% of 200 esophagograms methantheline-managed duodenal ulcer patients a ra logically demonstrable degree of cardiospasm was countered, in contrast with 3% in *routine diagn* surveys on these duodenal ulcer patients prior to met *theline therapy*. This may partially explain the incr in pyrosis frequently encountered with the initiatio methantheline therapy. Patients with *well-establi* cardiospasm become worse after administration of m antheline. Ten patients with cardiospasm who had passed a mercury-pneumatic dilator were refractor the same bouginage after parenteral administratio 100 mg. of methantheline.

We did not employ gastrometric evaluation. *Ball* kymographic studies [6] have indicated effective *inhibi* of gastric contraction waves by *methantheline*. The ra *graphic* evaluation has indicated that *methantheline* luces sluggish ineffective propulsive contractions with lelayed barium emptying into the duodenum. Gastrocopic observations have confirmed the radiographic indings of cessation of peristalsis and atony of the gastric /all. Persistent emesis considered psychogenic was stoped for an average of three hours in 15 out of 23 trials. Jolden [20] has indicated methantheline's efficiency in hyperemesis gravidarum.

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[6] Longino et al.[2d] Chapman et al.[2e]

Our radiologic observations were a "blind study" in hat the examiner was not aware that certain patients had een given 100 mg. of methantheline intramuscularly 0 minutes prior to study. In a study of 10 normal paents used as controls, methantheline definitely retarded ie emptying of the stomach in each instance. In seven atients sluggish, ineffective peristaltic waves and hypoonicity were noted. There was no specific comment on ie remaining three examinations. Of 10 patients with ncomplicated acute duodenal ulcer, 8 showed hypotonity, absence of previously described pylorospasm, and ieffective peristaltic activity. In all 10 patients the ulcer rater was more easily demonstrated than at the earlier xamination. A comparative evaluation with atropine nd bentyl® in 60 known ulcer patients showed that methntheline was definitely effective in 75% of cases for the emonstrable inhibition of gastric tonicity as compared ith an effectiveness of 30% with atropine (1/75 grain) nd 60% with bentyl® hydrochloride (50 mg.). There 'as no alteration in the ruga pattern in any instance of ve severe hypertrophic gastritis patients with methaneline, bentyl,® or atropine.

When methantheline was given pregastroscopically in 0 patients, we uniformly encountered (as noted by sher)[7] an atonic stomach easily distended without disomfort to the patients. Peristalsis, when present, was in 'eak waves, and the pylorus did not evert itself into the omach, as it usually does, but appeared patent and ubular. The ruga pattern in hypertrophic gastritis was ot influenced by methantheline. The gastroscopist was ot aware that methantheline had been substituted for the tropine he routinely administered preoperatively, which ad never been recorded as producing a similar effect. 'he definite evidence of influence on color or turgescence f the mucosa as photographed by Abbott and Wolf [8] 'as not present in our study.

Small bowel studies were difficult to interpret. Balloon nanometric [2f, g] studies have indicated the efficiency of nethantheline and the conclusion was drawn that the nticholinergic result is primarily a ganglionic effect of fficient prolonged action on the motility of the small ntestine. In 7 patients with quiescent regional enteritis in whom hyperperistaltic diarrhea was the only active complaint and 10 patients with active regional enteritis, methantheline in 100 mg. doses parenterally administered every two hours did not alter the six-hour hypermotility of barium nor of gentian violet when the patient was free of barium. The radiologist did not offer any descriptive alteration over previous studies. In 10 normal control patients there was no alteration in mucosal pattern other than a suggestion of widening in 3, but there was a definite hypomotility of barium and gentian violet with a prolongation of transit time by an average of 3 hours and 22 minutes. In 17 cases of regional enteritis we have not encountered any beneficial effect from methantheline. In 10 cases of assumed hyperperistaltic diarrhea, in which the barium transit time to the ileocecal valve was less than 90 minutes, an appreciable hypomotility was achieved with methantheline, prolonging the transit time to an average of 256 minutes and ameliorating the diarrhea from an average of 12 stools to 4 stools per 24 hours.

Inaccuracy is obvious in the estimation of colonic function. Data from animal experimentation is rarely applicable to the human subject. The colostomized patient is hardly a candidate for valid experimentation. Kern [21] and his associates give impressive conclusions from balloon kymography in sigmoid studies on the intact human subject. In comparative evaluation, they indicate methantheline's antispasmodic efficiency in drug and food induced sigmoid hyperactivity. It was hypothesized that methantheline-resistant, emotionally precipitated spasm was related to stimulation by extrinsic cholinergic nerves ending within the substance of the effector cell and thereby escaping methantheline's anticholinergic influence, which is an inhibition of acetylcholine entering the cell.

In 20 selected patients in whom bowel habit regulation was a fixed pattern of postcoffee morning defecation we abolished this gastrocolic reflex to defecation in every instance with administration of 100 mg. of methantheline orally 30 minutes prior to coffee ingestion. This consistent effect seems to confirm the abolition by methantheline of gastrocolic reflex observed by Kern [21] and his associates.

Actual colon disease entities in our observation were not influenced by methantheline. Diarrhea concomitant to neoplasm in 18 patients (cecum, three; ascending colon, one; transverse colon, one; descending colon, three; sigmoid, four; rectosigmoid, six) was not altered. The hypermotility diarrhea of the various forms of chronic ulcerative colitis was not influenced in 60 cases studied (amebiasis, 36; idiopathic chronic ulcerative colitis, 18; tuberculous cecitis, 2; lymphopathia venereum, 4.)

In the severe irritable colon syndrome (20 patients) in which both hypersecretion and hypermotility contributed to cause a persistent diarrhea with copious mucus and fluid stools in excess of eight daily, methantheline in doses of 400 mg. daily had a limited but appreciably favorable effect. Frequency of defecation and diminished mucus occurred in 11 patients. In the subjective evaluation 16 patients claimed amelioration of pain and tenesmus coupled with ability to control defecation. In this respect the gastrocolic reflex was aborted in 13 cases. This influence of methantheline, however, was not perpetuated on withdrawal of the anticholinergic, nor was it persistent, since there were recurrences in every patient maintained on methantheline within a follow-up of six months, and those recurrences proved refractory to an increase of methantheline to full tolerance.

In the so-called spastic form of constipation there was no evidence of methantheline's influence in 20 patients adequately observed.

In 10 patients specifically complaining of painful urgency to defecate, with proctosigmoidoscopic exami-

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7. Asher, L. M.: Gastroscopic Observations on the Effect of Banthine in the Human Stomach, Gastroenterology, to be published.

8. Abbott, F., and Wolf, S.: Effects of Banthine on Gastric Function of Normal Men and Subjects with Peptic Ulcer, unpublished data.

nations showing only extreme spasm and radiological studies entirely negative, preproctosigmoidoscopic parenterally administered methantheline (100 mg.) ameliorated the endoscopic evaluation of spasm in only three of the 10 patients. Methantheline did not ameliorate the dyschezic discomfort in these patients when continued in full therapeutic dosage. In the spasm endoscopically observed in association with actual rectosigmoid disease there was no appreciable influence accreditable to methantheline. No specific influence on rectosigmoid mucosal color or turgescence was observed.

Twenty patients with acute febrile diarrhea of undetermined cause with an average of four stools an hour had complete cessation of defecation for four hours after 100 mg. of parenteral methantheline. No other medication was given and methantheline was not continued. Diarrhea recurred in 17 and was again controlled by methantheline.

Anal sphincteric spasm without associated demonstrable pathology in 20 patients was not demonstrably ered by methantheline despite the fact that an occanal patient on large doses of the drug complained of mild fecal incontinence.

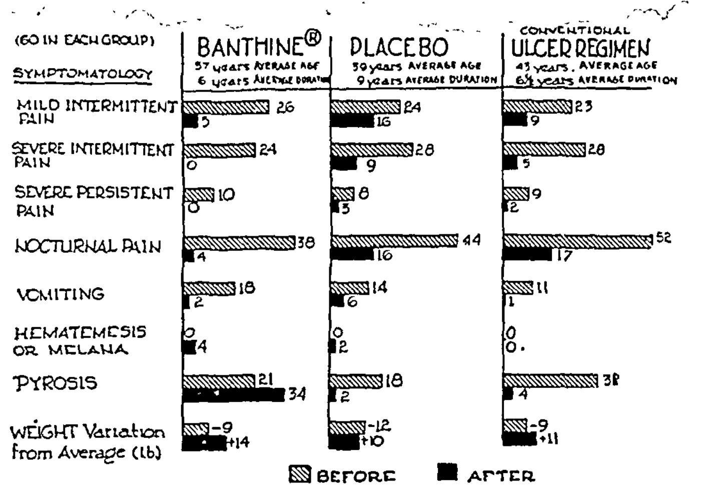

Chart 4.—Comparative therapeutic evaluation of symptomatology in male patients with uncomplicated duodenal ulcers after an 18-month follow-up.

HEALING

Our study was in this respect limited to a single specific entity: uncomplicated duodenal ulcer with an 18 month follow-up. Patients submitted to surgery in the course of the study were excluded from the series. All patients initially had definite ulcer craters on radiologic examination.

Sixty duodenal ulcer patients have been managed as ambulatory patients with the usual adjunctive dietotherapy and symptomatic measures in addition to methantheline. The control series were managed by an acceptable ambulatory ulcer regimen supplemented by a placebo resembling methantheline, and a third group comprised patients not given any antispasmodic other than inadequate doses of atropine. Methantheline was used orally in this study, given in 100 mg. doses every six hours until the patient was asymptomatic and thereaft adjusted to 50 mg. before meals and 150 mg. at bedti

The curative effect of methantheline so enthusiastica initially sponsored for duodenal ulcer by Grimson a others is questioned. Similar variation may be encou tered in any group of ulcer patients; perfect cont

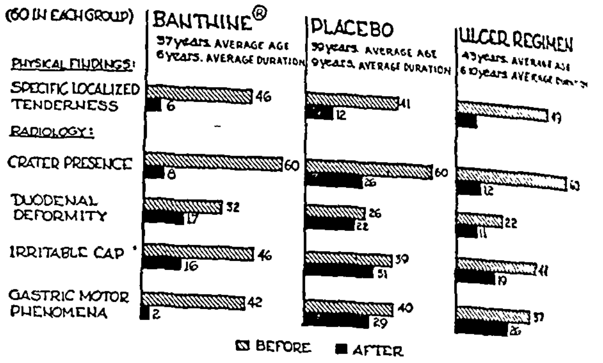

Chart 5.—Comparative therapeutic evaluation of physical and r logical findings in male patients with uncomplicated duodenal ulcers an 18-month follow-up.

studies are not possible. The percentage of "cures' both groups does not appreciably vary from that of previous evaluation of ulcer patient management. R tivation (symptomatic) during therapy was not unus

It is difficult to rationalize Lium's[9] concept, vagotomy might influence the course of ulcerative co which motivated the surgical efforts of Thorek,[10] D nis,[11] and others. We could demonstrate no influence healing accreditable to methantheline in 18 patients severe chronic "idiopathic" ulcerative colitis, nor in patients with regional enteritis.

The premise that pancreatitis may be favorably fluenced by methantheline is suggested in our secre studies and in the pain relief recorded, but we do not that a claim of "healing" due to therapy with this is justifiable.

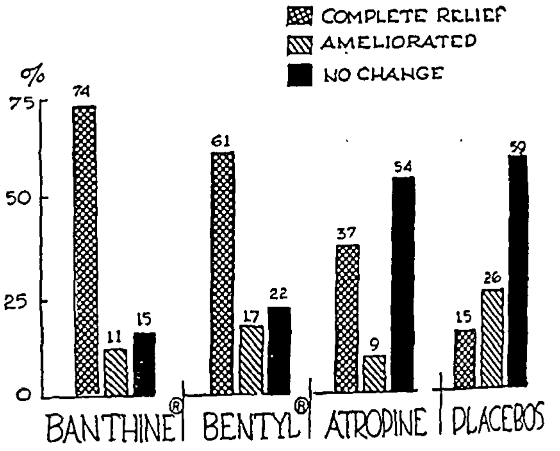

Chart 6.—Pain in pylorospasm without *demonstrable concomitant* ease in 46 patients.

PAIN RELIEF

Pain depends primarily on the interpretation of comfort by the individual patient. Pain relief may fur evoke an emotional reaction, especially when a pa teral medication is used. In an effort to evaluate thi accurately as possible, considering all of the pitfalls such an attempt, we used comparable preparatio atropine, bentyl,® and placebos.

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9. Luim, R.: Peptic Ulcer and Diarrhea Following Removal of the Prevertebral Ganglia in Dogs, Surgery 9: 538, 1941.

10. Thorek, P.: Vagotomy for Idiopathic Ulcerative Colitis and Regional Enteritis: Results in 21 Cases, J. A. M. A. 145: 140 (Jan. 20) 1951.

11. Dennis, C.; Eddy, F. D.; Frykman, H. M.; McCarthy, A. M., and Westover, D.: The Response to Vagotomy in Idiopathic Ulcerative Colitis and Regional Enteritis, Ann. Surg. 128: 479, 1948.

Pain, a prominent part of these entities, was consid- ed.

In cardiospasm (18 patients) no relief was provided y methantheline nor by any of the control preparations.

In pylorospasm without demonstrable concomitant isease (46 patients) the results are shown in Chart 6.

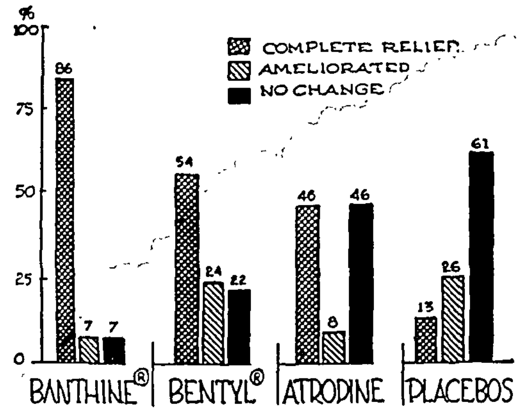
In uncomplicated duodenal ulcer with typical pain 200 cases) the results are shown in Chart 7.

In duodenal ulcer with nocturnal ulcer pain (20 cases) e results are shown in Chart 8.

In addition we attempted an evaluation of methantheline pain relief in a group of 159 patients with oral and renteral preparations; the results are shown in Chart 9.

In six cases of painful pancreatic calculosis in which e symptomatology was fairly specific of chronic recurnt pancreatitis, pain relief was achieved in five with ethantheline therapy but was not influenced by bentyl,® ropine, or placebo.

In seven cases of severely painful acute pancreatitis in ich methantheline was used the pain was aborted withit need for narcotics in four instances, definitely eliorated in two, and the drug was of no apparent luence in one. Atropine used in controls had no influce in any case.



rt 7.—Typical pain in uncomplicated duodenal ulcer in 200 patients.

In six patients with biliary colic methantheline did t influence the character or severity of the pain.

No other observations were considered sufficiently ecific for evaluation.

COMMENT

While certain reservations obviously must be exacted accepting conclusions from these studies, one cannot scount the practical aspects of clinical observation and e reasoning that justifies the following statements.

We have confirmed the relative safety of methanthe- ie. True intolerance was rare. Certain unpleasant side fects have been amply emphasized in earlier publicaons. Curariform reaction was observed once in 562 paents; facial erythemoid dermatitis occurred in two atients. These reactions are probably best termed unsual idiosyncrasies. From our observations coronary eart disease, the preoperative period, and adynamic eus are probable contraindications to methantheline. 'e have precipitated ischemic pain in patients with cornary insufficiency. Postoperative urinary retention was a onstant occurrence when methantheline was used in the eoperative period. Adynamic ileus has been precipiated and accentuated after methantheline therapy.

It is necessary to consider the individual case in order to judge dosage. Dose schedule is arbitrary. Like Winkelstein [2b] we have shifted to antecibum administration in many instances. Anticipating nocturnal difficulties, we adhere to a large bedtime dose (150 to 200 mg.). After symptomatic and radiographic response in ulcer patients we are advocating 150 mg. at bedtime and 50 mg. every morning. As yet we have not found it necessary to discontinue the drug.

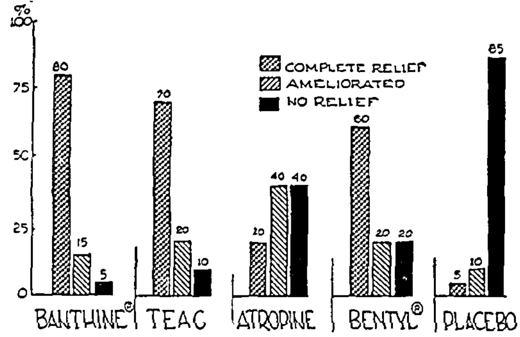


Chart 8.—Nocturnal pain in 20 patients with duodenal ulcers. TEAC is tetraethylammonium chloride.

Gastric secretory inhibition by methantheline does not make us enthusiastic. We feel that volumetric studies are very inaccurate except in complete obstruction, and therefore we are not too impressed by what seems to be a methantheline influence in this respect. However, this inhibition has been a consistent finding in other reports. We concur with others that inhibition of hydrochloric acid secretion by orally administered methantheline is neither consistent nor dramatic. Further, we would like to interject the suggestion that a tolerance to methantheline may be acquired. In four patients who initially showed a satisfactory gastric secretory inhibition in response to methantheline therapy there was a progressive decline at three-month intervals to an eventual absence of response after they had been on methantheline therapy for 12 months.

From our study of small bowel fistulas the data is too inadequate for conclusion but there is the suggestion that ileostomy patients may be assisted by methantheline.

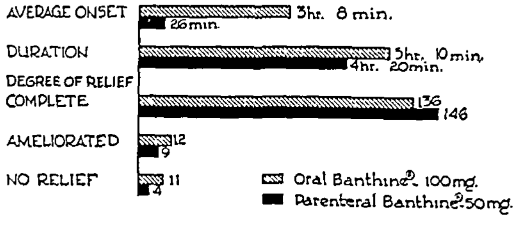


Chart. 9.—Severe typical ulcer pain in 159 patients. Where no relief was experienced, a period of six hours was used in granting duration of effect.

We are encouraged to feel that the pancreatic fistula patients were benefited. The secretory output was definitely influenced. We are cognizant that various healing factors may have contributed to the response. In support of our favorable result have been the prompt response to methantheline in six cases of acute pancreatitis.

While the adjunctive virtues of methantheline in ulcer management are obvious, we stress our earlier cc sion that the basic principles of ulcer management must not be discarded in unwarranted enthusiasm over the dramatic influence of this drug in achieving pain relief.

CONCLUSIONS

1. It is confirmed that methantheline (banthine®) bromide is an effective anticholinergic, a valuable adjunct to the management of many gastrointestinal disturbances characterized by hypersecretion and hypermotility.

2. Methantheline, clinically, is superior to atropine a an antispasmodic. A comparative evaluation with bentyl hydrochloride (beta-diethylaminoethyl 1-cyclohexyl clohexanecarboxylate hydrochloride) and tetraethylam monium chloride is not ventured from our present obs vations, since these two products were not used controls throughout the study.

3636 St. Charles Ave.

TREATMENT OF SHOCK IN RECENT MYOCARDIAL INFARCTION BY INTRA-ARTERIAL TRANSFUSION

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and
Robert C. Levy, M.D., Chicago

A significant reduction in the early mortality following coronary thrombosis with myocardial infarction has resulted from the routine use of anticoagulants, primarily by decreasing the incidence of thromboembolic complications.[1] In many respects, however, the treatment of recent myocardial infarction remains inadequate. This is especially true of patients in whom myocardial infarction is initially or subsequently attended by a clinical picture of profound shock. The appalling mortality statistics are a grim testimonial to the helplessness of the clinician in the effective treatment of this type of case.

Rosenbaum and Levine [2] observed a mortality of 26% when shock was mild, 51% when it was moderate, and 93% when it was severe. Rathe,[3] in a study of 274 cases of recent myocardial infarction, found a mortality of 91.6% in patients with a pulse pressure of 20 mm. Hg or less. Shock was present in 69% of his early fatal cases. The studies of Master [4] disclosed an over-all mortality of 58% when the pulse pressure was 20 mm. Hg or less; in patients previously normotensive, however, mortality was 73%. When the systolic pressure fell bel 80 mm. Hg the patient usually died. Mintz and Ka in a study of 524 cases from Michael Reese Hospi found a mortality of 77.8% when the blood press reached shock levels. Similar observations have b published by Coombs, Fishberg, and others.[6]

Recently one of us (E. N. S.) had occasion to obse a moribund patient (Case 1) in whom severe shock developed with the onset of an anteroseptal infarct. was unconscious, pulseless, without obtainable bl pressure, with three to four irregular gasping respirati per minute, and only electrocardiographic evidence cardiac activity. In desperation an intra-arterial tra fusion of plasma was administered. The immediate be ficial response to this procedure was so striking (accompanying table), although transient, that furt investigation of the value of this form of therapy cardiogenic shock accompanying recent myocardial farction seemed imperative. The following report of results obtained in nine cases represents our prelimin experience with this technique.

SELECTION OF PATIENTS

The nine cases in this study were selected from private medical service of the Michael Reese Hospi The criteria for selection were (1) a history compati with a diagnosis of recent myocardial infarction; (unequivocal electrocardiographic evidence of rec myocardial infarction; (3) the presence of the clin picture of severe shock, as characterized by cold, clam extremities with pallor and/or cyanosis, marked hy tension, small pulse pressure, and faint heart tones quently accompanied by gallop rhythm.

PROCEDURE

The intra-arterial transfusion was carried out in the follow manner. The radial artery was delivered through a 3 to 5 longitudinal incision above the styloid process and cannulated that the infusion was directed toward the heart. This vessel selected because it is easily accessible, unaccompanied by ot important structures in this area, and, in most instances, may ligated with impunity when necessary. The apparatus origina employed for this procedure was similar to that reported Jones and co-workers.[7] However, this equipment proved to too cumbersome, and in subsequent transfusions we utilized

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Dr. L. N. Katz gave valuable criticism in the preparation of the manuscript.

Postdoctorate Research Fellow, National Heart Institute (Dr. Silber); Residents in Medicine (Dr. Levin and Dr. Becker).

From the Cardiovascular Department, Medical Research Institute, and the Department of Medicine, Michael Reese Hospital. The Cardiovascular Department is supported in part by the Michael Reese Research Foundation and aided by the Herbert G. Mayer Memorial Fund for Cardiovascular Research.

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[7] Jones, P. G.; Davis, J. H., Jr.; Hubay, C. A., and Holden, W. D.: Physiologic Mechanisms of Intra-Arterial Transfusion, Surgery **27**: 189, 1950.

odification of the apparatus designed by Kay,[8] which, besides ing simple, also enabled us to employ arterialized blood under readily controlled infusion pressure (see illustration).

Whole blood was used in seven of the nine cases because of its ygen-carrying capacity and also because the danger of ischemic crosis and subsequent slough associated with the use of other ents was eliminated.[9]

It was our original intent to limit the total amount of blood ad- inistered to 250 to 300 cc., the theoretical capacity of the terial tree.[10] However, in practice it was usually necessary employ considerably more blood in order to obtain the desired nical response (see table). In two cases plasma was employed cause whole blood was not immediately available.

In every instance, despite a depressed sensorium, the procedure ovoked severe pain along the course of the vessels of the arm. is was particularly true immediately after the transfusion was rted. Spasm of the collapsed vessel in response to sudden dis- tion by the blood infused under pressure is apparently the chanism for the pathogenesis of this pain. Liberal infiltration 1% procaine solution at the infusion site was ineffective, and use of morphine was often necessary.

RESULTS

In six of the nine cases the blood pressure was 0 mediately prior to transfusion. In the remaining cases systolic pressure was 95 mm. Hg or less.[11] In no se was the pulse pressure greater than 30 mm. Hg. A nificant initial restoration of blood pressure in eight ses (see table) was induced by 125 to 400 cc. of blood ministered in 10 to 20 minutes. In one case (Case 6) re was no blood pressure response and the patient d during the procedure. This patient was moribund en the transfusion was begun. In the seven cases in ich whole blood was used, the total amount infused ried from 250 to 500 cc., administered over a period 20 to 30 minutes.

One hour after completion of the transfusion, the erial pressure was higher than the initial pressure ponse in four cases (Cases 3, 4, 7, and 9). In one e (Case 2) there was a slight fall in systolic pressure the end of one hour. Subsequently the pressure rose in and was maintained. In two cases (Cases 5 and 8) pressure fell at the end of one hour from the initial el attained with transfusion. In one case (Case 1) systolic pressure remained at the level of initial ponse.

In Case 1 the procedure was performed as a trial. In eight remaining cases, two patients (Cases 3 and 4) de a complete recovery and were discharged from the spital with no clinical evidence of congestive heart lure or coronary insufficiency. Both of these patients re in a state of profound shock without obtainable od pressure at the time transfusion was performed. a third patient (Case 2) in severe collapse intra- terial transfusion produced a dramatic change in the mediate course of the clinical picture. Consciousness ruptly returned, a normal blood pressure and pulse te were restored within 10 minutes, and during the next ur days this improvement was maintained. On the fifth y following transfusion a paroxysmal tachycardia eveloped that did not respond to quinidine sulfate or igitalis, and the patient died 128 hours after intra- terial transfusion. The pronounced favorable altera- on of the clinical course complicated by the develop- ent of an uncontrollable tachycardia that resulted in eath warrants inclusion of this case as an instance of mmediate successful response to this form of therapy.

Case 9 is a fourth instance of an immediate favorable response to this procedure. Admitted in severe shock, this patient had a normal blood pressure and pulse rate and was conscious within one hour after transfusion. Ninety-six hours later the patient was apparently making a satisfactory convalescence, when he gasped suddenly and abruptly died. The mode of death and the absence of necropsy findings other than recent myocardial infarction suggested a ventricular arrhythmia as the immediate cause of death. In Cases 5 and 8 there was no sustained benefit from the procedure. In the former case a harsh systolic murmur developed during the transfusion that suggested the possibility of a rupture of the interventricular septum or a papillary muscle. Unfortunately, permission for a necropsy was not obtained. In Case 7, although the patient was somewhat improved following infusion, the blood pressure rose from 0 to 84/65 mm. Hg during exposure of the radial artery. This made evaluation of the therapy difficult, and for this reason the case is included among the failures. The patient in Case 6 died during the procedure. Although the possibility that transfusion contributed to the death of the patient cannot be excluded, post mortem revealed only a recent myocardial infarct, without other damage to the heart or great vessels.

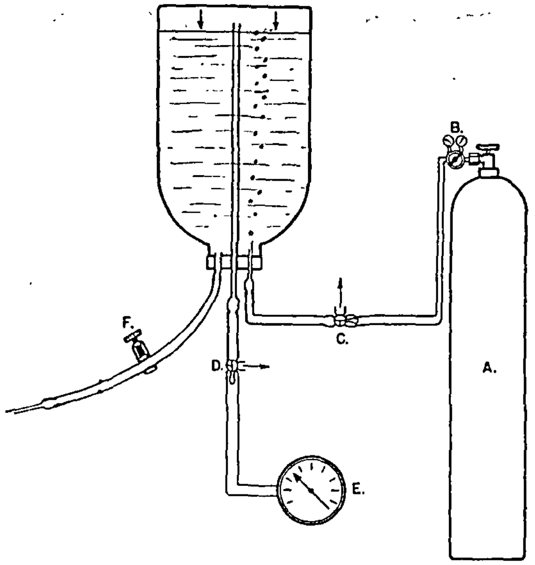

Diagram of apparatus used for intra-arterial transfusion. A is the oxygen pressure tank, and B is the pressure regulator valve. C and D are three-way valves, E is a pressure gage, and F is a screw clamp to regulate the flow of blood into the artery. The blood is "arterialized" by allowing oxygen to bubble into the bottle and escape to the outside through valve D. F is closed during this arterialization. When transfusion is started, F is opened. The manometer is turned into the circuit by turning valve D and records the pressure at which the oxygen entering from A forces blood into the artery.

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[11] The level of arterial pressure at which the clinical picture of shock develops is a matter of considerable individual variation. In general, the absolute level is appreciably higher in hypertensive than in normotensive persons (Sampson, J. J., and Singer, I. M.: Plasma an Infusion Following Myocardial Infarction, Am. Heart J. **38**: 54,

COMMENT

It is generally accepted that development of shock in myocardial infarction is initiated primarily by an abrupt fall in cardiac output. This has been experimentally demonstrated by Mendlowitz [12] at this institution. Similar clinical data were obtained by Grishman and Master [13] with the Wezler-Boeger method and by Starr and Wood [14] by means of ballistocardiography. The peripheral vasoconstrictive phenomena, diminished circulating blood volume, and slowing of the circulation time, which subsequently develop, differ in no way from other forms of oligemic shock.

The development of severe shock carries with it certain grave consequences in myocardial infarction. In the first place, since coronary flow depends primarily upon the mean aortic pressure and the cardiac output,[15] a sharp decline in these two factors not only may favor the development of more extensive infarction, but may exert a deleterious effect on the contractile power of the viable muscle. Studies of the shock state based upon changes in ventricular volume, arterial and ventricular pressures, and electrocardiograms point to the deterioration of the myocardium under such circumstances.[16] This depre
of the heart may become irreversible and make reco
impossible.[10] The experiments of Prinzmetal [17] su
that a myocardium weakened and herniating owi
insufficient blood may show a prompt return toward
mal with the addition of plasma or blood. Secondl
cerebral ischemia accompanying a decline in cardia
put may of itself operate to intensify the shock sta
depression of vital centers. The finding of Opdyke [1
circulatory failure could be induced in dogs by me
cerebral ischemia alone suggests that such a mech
may operate clinically, although there is at prese
evidence to support this concept.

Finally, the marked diminution in renal blood f
leads to ischemia and damage of renal tubules.[20] If
is prolonged lower nephron nephrosis may develop
after a normal blood pressure has been restored
Cases 3 and 4 of our group, in which the shock stat
present for only two and one-half and three hou
spectively, moderate to severe oliguria and azo
developed but ultimately disappeared.

There is good evidence to indicate that blood
duced into the radial artery reaches the arch of the
the coronary arteries, and the cerebral circulation.
and his colleagues [7] demonstrated by a series of a
grams in dogs that when iodopyracet concentrated
tion (diodrast®) was infused into the femoral art
levels of systemic pressure less than 50 mm. H
arteries arising from the aortic arch were visualize
cluding the coronary and cerebral circulations. P
described an immediate inspiratory gasp in dogs e
guinated to the point of respiratory arrest when an i
arterial transfusion was administered. Respira
subsequently were restored. Page attributed this
nomenon to the perfusion of the respiratory center. J
and his associates [7] confirmed this interpretatio
demonstrating that this response could be abolishe
clamping the vertebral arteries and could be mac
reappear by releasing the clamps during the course

Summary of Data in Nine Cases

Case No.	Age, Yr.	Interval Between Infarction and Onset of Shock, Hr.	Duration of Shock Before Transfusion, Hr.	Admission B. P.,* Mm. Hg	B. P. Prior to Transfusion, Mm. Hg	Response to Transfusion: Amount Blood for Initial Response, Cc.	Initial Transfusion Time, Min.	Initial B. P. Rise, Mm. Hg	Total Blood, Cc.	Total Transfusion Time, Min.	B. P. 1 Hr. After Transfusion, Mm. Hg	Final Results	Aut Fin
1	50	12	6½	120/80	0/0	300‡	15	90/0	450	20	90/0	Died 9 hr. after transfusion	Recent septa
2	70	144	4	110/80	90/58	125	10	138/84	250	20	110/74	Died 128 hr. after transfusion	No aut
3	60	60	2	168/95	0/0	300	20	70/40	300	20	110/80	Survived §	...
4	62	½	2½	0/0	0/0	300	20	90/60	500	30	140/90	Survived §	...
5	65	72	8	198/116	95/70	300	10	115/80	500	20	82/68	Died 50 hr. after transfusion	No aut
6	60	168	8	100/70	90/..†	250‡	10	90/..†	550	25	....	Died during transfusion	Recent cardi
7	62	72	8	90-80/0-0	0/0-84/65	200	15	95/78	350	25	100/80	Died 92 hr. after transfusion	Recent later
8	70	10	3½	120/80	0/0	250	10	80/70	425	20	70/0	Died 3 hr. after transfusion	No au
9	64	6-8	2	0/0	0/0	300	15	60/0	400	20	110/70	Died 96 hr. after transfusion	Recent infar

* B. P. = blood pressure. † Diastolic pressure unobtainable. ‡ Plasma was used instead of whole blood.
§ Patient was living and well three months after transfusion.

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20. Selkurt, E. E.: Changes in Renal Clearance Following Complete Ischemia of Kidney, Am. J. Physiol. **144**: 395, 1945; Comparison of Renal Clearances with Direct Renal Blood Flow Under Control Conditions and Following Renal Ischemia, ibid. **145**: 376, 1946.

intra-arterial transfusion. In our Cases 1 and 2, this initial inspiratory gasp was observed with the inception of the transfusion, indicating clinical reproduction of the xperimental results obtained by Page.

The advantages in the treatment of shock resulting rom myocardial infarction by intra-arterial transfusion nay be summarized as follows. 1. Only a relatively small mount of blood is required to restore rapidly blood pressure and a normal circulating blood volume. A much arger amount is required intravenously to produce an quivalent effect and must be given slowly by this route o avoid further burdening of the heart. Therefore, it is ot often possible to effect a prompt restoration of normal emodynamics by the venous route.[23] In the presence of ulmonary edema intravenous fluids are contraindicated; owever, we have found that intra-arterial infusion ppears to have no deleterious effect, even in the presence of pulmonary engorgement. In our experience the nprovement in the heart condition accompanying the estoration of an effective coronary circulation is often ollowed by clinical evidence of a diminution in pulionary congestion. When shock following recent infarcon is accompanied by evidence of systemic venous ngorgement, the procedure of choice is the removal of 00 to 400 cc. of blood from the venous side followed y its "arterialization" and rapid introduction into the rterial system. It has been our observation that when itra-arterial transfusion produced no rise in systemic ressure or a transient rise which persisted only during e period of infusion, these were ominous signs, indicave of irreversible peripheral vasodilatation or irreparble myocardial depression.

2. Intra-arterial transfusion, by its improvement of oronary flow, tends to relieve hypoxia and to restore the normal contractile power to that portion of the myocardium that has not been infarcted. For this purpose, arterialized whole blood is the agent of choice. Since the severity of the shock is not necessarily correlated with the extent of myocardial damage, a striking effect may be obtained, despite the clinical picture, provided intra-arterial transfusion is performed early enough before irreversible cardiac depression has been sustained. The importance of prompt initiation of therapy is illustrated by our experience, in which the most gratifying responses occurred in the three cases (Cases 3, 4, and 9) with the shortest intervals between the onset of shock and transfusion. 3. Intra-arterial transfusion results in prompt stimulation of the respiratory centers; as indicated by prompt improvement of respiration and restoration of a normal sensorium. 4. Finally, intra-arterial transfusion provides for the rapid return of kidney function by reestablishing an adequate filtration pressure.

The results reported here, it should be stressed, are of a preliminary nature. Whether this technique will come to occupy an important place in the treatment of shock induced by myocardial infarction is yet to be determined. Our present experience has been sufficiently promising to warrant further investigation of this therapy.[24]

29th and Ellis Ave. (Dr. Silber)

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[24] We have been informed that Dr. L. C. Akman and Dr. E. F. Berman of Sinai Hospital in Baltimore have recently used intra-arterial transfusions with some striking improvement in some cases.

HYDROCORTISONE AND CORTISONE INJECTED INTO ARTHRITIC JOINTS

COMPARATIVE EFFECTS OF AND USE OF HYDROCORTISONE AS A LOCAL ANTIARTHRITIC AGENT

Joseph L. Hollander, M.D., Ernest M. Brown, Jr., M.D., Ralph A. Jessar, M.D.
and
Charles Y. Brown, M.D., Philadelphia

The antirheumatic effect of cortisone administered arenterally or orally has been documented in numerous eports[1] during the past two years, but little has been vritten about cortisone administered locally into the arhritic joint. Apparently Thorn[2] was the first to instill an drenal cortical hormone directly into a rheumatoid arhritic joint. Early in 1950 he injected 10 mg. of hydroortisone (17-hydroxycorticosterone or compound F) nto the inflamed knee of a patient with rheumatoid arhritis and noted a prompt local alleviating effect. Since this was coincident with a general improvement in the condition of the patient, it was felt that the action was systemic and no further experiments were conducted along this line.

Cortisone has been used locally with encouraging results in various inflammatory diseases of the eye.[3] Some reports have claimed benefit from direct application of cortisone in certain skin diseases.[4]

Since a locally used anti-inflammatory agent could be valuable in the treatment of an arthritic process, particularly when only one or a few joints are affected, two of

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Drs. Francis D. W. Lukens and Francis C. Wood, of Philadelphia, and Dr. Philip S. Hench, of Rochester, Minn. assisted in the preparation of the manuscript.

Read (in part) before the Annual Meetings of the American Society for Clinical Investigation, April 30, 1951, and The American Rheumatism Association, June 8, 1951, Atlantic City.

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[3] Leopold, I. H., and others: Local and Systemic Cortisone in Ocular Disease, Am. J. Ophth. **34**: 361-371 (March) 1951.

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us (J. L. H. and E. M. B.) and Stoner [5] attempted to utilize cortisone by injecting 25 mg. of the suspension directly into the inflamed knee joint in seven patients with rheumatoid arthritis. Three of the seven patients said they had improvement in symptoms the day following the injection. The subjective improvement lasted only 24 hours, and objective measurements failed to demonstrate any consistent change in the condition of the injected joint. Despite the suggestion that the locally injected cortisone had some beneficial action in the three patients, the action was too transient and of insufficient degree to be of practical value. Freyberg and others [6] also injected cortisone locally into the knee joints of eight patients in amounts up to 50 mg. Although the benefit seemed more consistent than the results just mentioned, the effect again was too transient and inadequate to be of practical value in most cases.

The reports of Mason and others [7] suggested the hypothesis that hydrocortisone rather than cortisone might be the principal corticoid with anti-inflammatory activity at the tissue level. When hydrocortisone became available through Merck and Company [8] in January, 1951, it was decided to attempt local administration of the hormone and to compare its effect with that of cortisone in the rheumatoid arthritic joint.

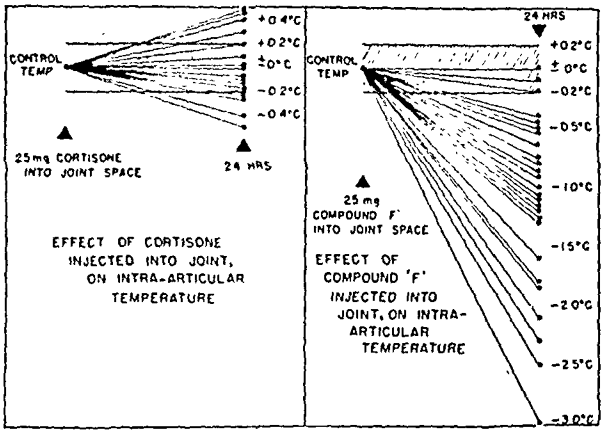

Fig. 1.—Comparative effects of cortisone (left) and hydrocortisone (right) on the joint temperature 24 hours after the intra-articular injection of each. Control temperatures are represented as the zero point, and the change after 24 hours is expressed in centigrade degrees above or below the control. Each slope represents a single study. The shaded area shows standard deviation.

COMPARISON OF EFFECTS OF CORTISONE AND HYDROCORTISONE USED LOCALLY IN RHEUMATOID ARTHRITIS

Patients chosen for the comparative study were those with active rheumatoid arthritis involving both knees, since these joints are most easily injected. The contralateral knee served as an untreated control when either cortisone acetate or hydrocortisone acetate suspension was administered into one joint. Since patients with rheumatoid arthritis are extremely suggestible, questioning as to symptomatic improvement was minimized. Evaluation of effect was based on measurement of circumference, degree of tenderness, and range of motion. In 43 instances additional data were obtained by performing cell counts of the synovial fluid obtained by daily aspiration of the knees and daily determinations of the intra-articular temperature.[9] The intra-articular temperature has been shown to reflect changes in joint inflammation.[10]

METHOD FOR INJECTION

The skin over the anteromedial surface of the knee was cleansed with alcohol, and a 20-gage needle (on a dry syringe) was quickly inserted into the synovial cavity. Procaine infiltration of the tissues was only necessary when the joint contained little excess fluid. The withdrawal of even a few drops of synovial fluid proved the entrance of the needle into the joint space. The needle was left in place and the aspirating syringe replaced by a second syringe, into which the desired amount of cortisone or hydrocortisone suspension had been drawn. The hormone was injected gently. The plunger was slightly withdrawn to be sure the needle was still in the joint space, and even "pumped" a few times to assist the mixing of the suspension with the synovial fluid. The needle was then withdrawn, and the joint was moved a few times to assist mixing. A small sterile dressing was placed over the site. The patient was then allowed to go about his usual activities.

RESULTS

Twenty-five milligrams of cortisone acetate was injected intra-articularly in each of 17 tests on 12 patients with rheumatoid arthritis. No significant improvement in the physical signs of the inflamed joint was detected in any case throughout the subsequent week of observation, but there was subjective benefit in five. Larger doses of cortisone (50 to 60 mg.) in four instances only produced local irritation of the synovium with temporarily increased discomfort and swelling.

With the use of cortisone there was no marked reduction in the synovial fluid cell count in any instance, nor was there significant depression of the intra-articular temperature (Fig. 1). In two tests after local cortisone administration a fall of 0.5 C (0.9 F) in joint temperature was noted. Four tests showed a rise up to 0.5 C, and 11 showed no significant change. The mean difference is zero.

On the other hand, in 178 studies on 51 patients hydrocortisone acetate in doses of 25 mg. was injected into the joint space. After each injection there was significant improvement in swelling, tenderness, and freedom of motion within 24 hours. Because of difficulty in obtaining enough synovial fluid at this time, cell counts 24 hours after injection could be performed in only seven instances. In six of the seven the total cell count was reduced 50% or more. The most demonstrable effect of the administration of hydrocortisone was the depression of joint temperature in the treated knee as compared with that in the contralateral untreated knee. This was studied in 26 instances (Fig. 1).

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The effect of hydrocortisone on intra-articular temperture is illustrated in the right half of Figure 1. Significant alls in temperature from 0.4 C (.72 F) to 3.0 C (5.4 F) ollowing an injection were seen in 23 of 26 instances. The mean temperature fall was 1.1 C (1.98 F). The Figre does not show that in two of the three cases in which

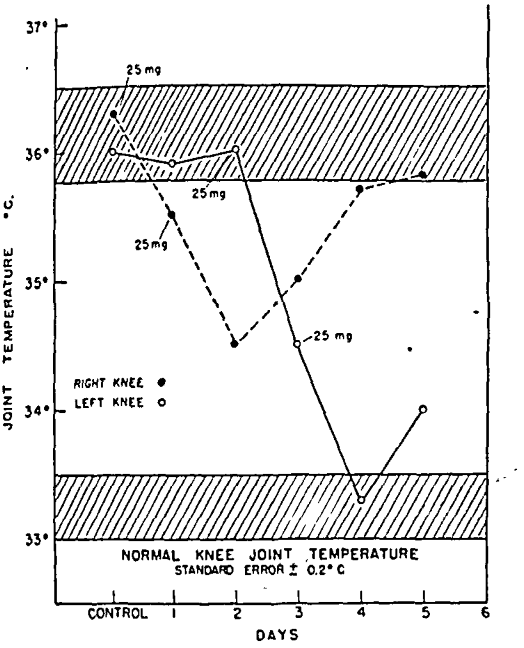

Fig. 2.—Effect of hydrocortisone injected into rheumatoid arthritic ints (knees) on the joint temperature. Upper shaded area shows standard viation; lower shaded area represents normal knee joint temperature.

o significant fall occurred a subsequent injection of 7.5 mg. of hydrocortisone into the joint produced a gnificant fall.

Figure 2 shows the typical effect of repeated injections f hydrocortisone into the knee on the joint temperature. he patient's left knee was used as a control and showed o change, while the temperature of the right knee was gnificantly reduced by each of two injections of hydroortisone on successive days. On the following two days he hydrocortisone was injected into the left knee, proucing marked reduction in joint temperature, while the ght knee temperature returned to the pretreatment level our days after the last injection into it. Figure 2 graphially illustrates the local effect of the hydrocortisone, since ne control knee temperature showed no change. Symptoatically, the control knee was likewise unaffected by njections of hydrocortisone into the opposite knee, nor were general metabolic effects noted.

Figure 3 illustrates a somewhat similar study on another patient and shows that use of at least 25 mg. of hydrocortisone is usually necessary to produce the effect on joint temperature. Here again the left knee served as a control, while the right was injected with increasing doses of hydrocortisone; then the right knee returned to pretreatment temperature as the left was treated.

Sixty-nine patients with rheumatoid arthritis have now been observed for as long as nine months following injections of hydrocortisone into one or more joints, repeated as often as necessary to continue the beneficial effect. A brief summary of results following individual injections is presented in the table. From the table it will be observed that there was considerable variation in degree of benefit obtained, and also in the duration. Injections were usually not repeated until the benefit from the previous hydrocortisone instillation had worn off (i. e., the inflammation was returning to the pretreatment state). In 18 instances another inflamed joint (ankle, shoulder, elbow, hip, wrist, or finger) was injected. The results were similar to those obtained in the knee.

For 11 cases, in which the joint involvement was severe, use of 37.5 mg. of hydrocortisone was necessary to produce an effect of sufficient degree and duration to be of practical value. Still larger doses have been utilized, but they have not so far proved more beneficial. Relapse following the period of beneficial effect was gradual, with swelling and limitation of motion often recurring to the degree originally noted before marked pain and stiffness returned. This relapse, though apparently inevitable, has never appeared worse than the pretreatment arthritic state in this series of cases. Alleviation from repeated injections usually equaled or even exceeded the original effect, even after as many as 17 reinjections. In two patients, however, successive injections have produced diminishing responses, necessitating increased dosage to maintain benefit.

Since it appeared that hydrocortisone acetate had a consistent anti-inflammatory effect on the rheumatoid arthritic joint when administered locally, whereas cortisone acetate did not, furfher studies were undertaken to determine whether solubility of the preparations was responsible for the difference. Whereas hydrocortisone is slightly more soluble than cortisone acetate in water, much more soluble forms of cortisone (namely, the free alcohol of cortisone and cortisone tricarballylate) appeared no more effective than cortisone acetate in nine experiments.

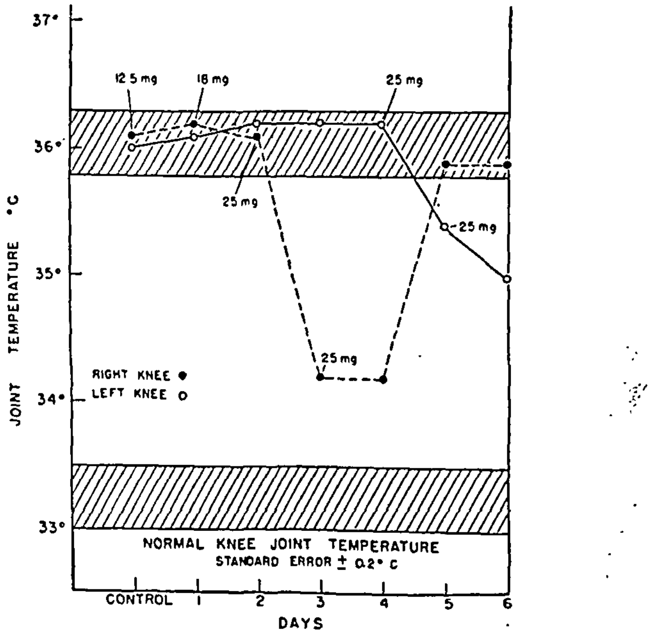

Fig. 3.—Effect of injecting increasing doses of hydrocortisone into rheumatoid arthritic joints (knees) on the intra-articular temperature.

It has recently been determined[11] that hydrocortisone, though somewhat more soluble in water than cortisone, is less soluble in blood plasma. Cortisone acetate is soluble in proportions up to 16 mg. per 100 cc. of plasma; whereas, hydrocortisone acetate is soluble in proportions up to 2.2 mg. per 100 cc. Thus, cortisone acetate is actually more than seven times more soluble in plasma. Since this same situation would presumably obtain with synovial fluid, it is possible that the relative insolubility of hydrocortisone enhances the local effect by slower dispersion from the joint.

Results Following Single Hydrocortisone Injection into Arthritic Joints (or Other Areas of Inflammation)

Diagnosis and Joint Injected	No. of Cases	Dosage (Mg.)	Degree of Local Improvement *	Duration of Beneficial Effect
Rheumatoid arthritis:				
One or both knees	62	25 in 51 37.5 in 11	4+ in 13, 3+ in 35 2+ in 12, 1+ in 2	Shortest 2 days (in 2), longest 10 weeks (in 1), average 8 day
Ankle	4	25	4+ in 1, 3+ in 1, 2+ in 2	3 days-4 mo., average 12 day
Elbow	4	15-20	3+ in 2, 2+ in 2	2-13 days, average 6 days
Shoulder	3	25	3+ in 2, 2+ in 1	4-17 days, average 10 days
Hip	3	25	4+ in 1, 2+ in 2	3-27 days, average 13 days
Wrist	3	15	2+ in 2, 0 in 1	0 in 1, 5 days in 1, 11 days in 1 average 5 days
Metacarpophalangeal	1	10	3+	13 days
Osteoarthritis:				
One or both knees	37	25	4+ in 22, 3+ in 14, 2+ in 1	Shortest 6 days in 1, longest over 5 mo., in 2 (to date average 3 weeks +
Hip	2	25	3+ in both	7-13 days, average 10 days
Terminal phalangeal (Heberden's node)	2	5	3+ in 1, 2+ in 1	5-15 days, average 10 days
First metatarsophalangeal	1	10	4+	6 weeks (continues to date)
Acute traumatic arthritis (sprain):				
Knee	3	25	4+ in 1, 3+ in 2	Continues to date (4 mo. in 2 mo. in 1, 6 weeks in 1)
Acute gouty arthritis:				
Knee	2	25	4+ in both	Continues to date (10 weeks 1, 7 weeks in 1)
Bursitis:				
Acute subdeltoid	3	15-25	4+ in all	Continues to date (4 mo. in 3 mo. in 2)
Chronic subdeltoid	7	15-25	3+ in 3, 0 in 4	Continues to date (3-4 mo.) 3, 0 in 4
Olecranon	2	25	4+ in 1, 3+ in 1	Continues to date (12 and weeks)
Prepatellar	1	25	4+	Continues to date (5 mo.)
Disseminated lupus erythematosus:				
Knee	1	25	4+	Continues to date (9 weeks)
Pleural cavity	2	100	4+ in both	5 mo. + in 1, 4 mo. in 1
Rheumatoid arthritis with eye inflammation:				
Chronic episcleritis	3	1 drop q. i. d. (Suspension of 5 mg. per cc.)	3+ in 2, 0 in 1	Maintained as long as drop continue (16 weeks in 1, weeks in 1)
Sjögren's syndrome	1	1 drop q. i. d.	3+	Maintained with drops (15 week

* 4+ benefit: local complete remission—complete absence of pain, *swelling*, *tenderness*, or limitation of function. 3+ benefit: complete rel symptoms, marked reduction of tenderness and swelling, *markedly* improved function. 2+ benefit: marked reduction of pain and stiffness, definite tion of swelling and tenderness, function improved. 1+ benefit: lessening of pain and stiffness, some decrease in swelling and tenderness, little c in function. 0 benefit: includes cases with only subjective or no improvement.

In 13 patients a comparison was made between the anti-inflammatory effect of hydrocortisone acetate and the effect of the more soluble free alcohol of hydrocortisone.[12] With the use of identical doses there appeared no difference in degree or duration of benefit obtained from local injection of the two preparations into the rheumatoid arthritic joint.

LOCAL ADMINISTRATION OF CORTISONE AND HYDROCORTISONE IN OTHER CONDITIONS

Although in our experience, as well as in that others,[13] hydrocortisone administered systemically h been no more effective than cortisone or corticotro (ACTH); the much more pronounced local effecti ness of hydrocortisone suggested certain therapeutic p sibilities. This preliminary report covers the results the empirical local administration of hydrocortisone 129 patients, including not only the 69 with rheumat arthritis but also 39 with osteoarthritis (degenerat joint disease), 13 with bursitis, 3 with acute diss nated lupus erythematosus, 4 with inflammatory disease associated with rheumatoid arthritis, 2 with a gouty arthritis, and 3 with acute traumatic arth (sprain). Nearly 700 local injections have now administered to the 129 patients, and as yet no untov effects have been observed. A summary of the dat tabulated in the table.

Results in Osteoarthritis.—In an effort to determ whether hydrocortisone was "antirheumatic" or sin a nonspecific anti-inflammatory agent, injections made into the joints of patients with osteoarthritis ither forms of joint disease. Results are summarized in he table.

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[11] Bornn, A.: Personal communication to the author.

[12] Drs. Lee Van Antwerp and I. C. Winter, of G. D. Searle and Company supplied the hydrocortisone in free alcohol form.

[13] Polley, H. F., and Mason, H. L.: Rheumatoid Arthritis: Effects of Certain Steroids Other than Cortisone and of Some Adrenal Cortex Extracts, J. A. M. A. **143**: 1474-1481 (Aug. 26) 1950.

Systemic cortisone or corticotropin therapy has been eported helpful in some cases of osteoarthritis,[14] but the sual benign course of this prevalent condition makes the dvisability of utilizing these agents doubtful because f expense and possible dangers, particularly in persons ast middle age—the very group suffering from osteorthritis.

Hydrocortisone acetate was injected into the osteorthritic joints of 39 patients. Since the knees are freuently troublesome, and are most easily injected, these ints were most frequently studied. Acute inflammation seldom seen in osteoarthritis, so the criteria for imrovement are not as sharply defined as in rheumatoid thritis. It seems significant, however, that in 36 out of 7 instances a complete or nearly complete disappearnce of symptoms and complete return of normal work lerance was noted within 24 hours after the injection of 5 mg. of hydrocortisone into the painful joint. The duraon of relief in these cases was several times as great in cases of rheumatoid arthritis (usually three weeks longer) and often persisted until the patient abused the fected joint in some way. Reinjection was made wheneer the symptoms recurred.

For comparison of effects, cortisone acetate in doses 25 mg. was substituted for hydrocortisone, without e patient's knowledge, in 22 instances. In no instance as the marked alleviation previously noted after hydrortisone injection reduplicated by use of cortisone. All e patients commented on this lack of effectiveness, inking the drug had lost its beneficial action on them. hey were persuaded to submit to an additional injection, is time of hydrocortisone. The beneficial action was gain obvious in everyone.

In two patients with unilateral osteoarthritis of the hip nalum coxae senilis), hydrocortisone was injected into e diseased joint. Both of these were elderly women who id previously failed to respond appreciably to systemilly administered cortisone.[15] A prompt alleviation of mptoms and improvement in range of motion and funcon was noted in both after 24 hours; this persisted 7 ys in one and 13 days in the other. Reinjection is being rried out periodically in both instances, as symptoms appear, but longer observation is needed before conusions can be drawn concerning long-range practicabily and benefit in such cases.

Results in Acute Traumatic Arthritis.—In three paents an acute swelling of the knee with effusion, which llowed known injury, was treated by aspiration, injecon of 25 mg. of hydrocortisone, and application of an lastic bandage. Although such conditions are frequently elieved by aspiration, rest, and support without the use f a hormone locally, the striking observation in these atients was the complete absence of pain, tenderness, nd swelling, which was noted within four hours of the ime of treatment and which has continued four months, wo months, and six weeks, respectively (to the time of vriting). No control studies with cortisone were made.

Results in Acute Gouty Arthritis.—Local use of ydrocortisone certainly would not be expected to alter he metabolic derangement occurring in cases of this disase. The desire to study the range of effectiveness of the hormone led to its trial in two patients with typical gout, one in the late tophaceous stage who had an acute exacerbation in the knee and the other with an acute gouty knee which had responded only moderately to colchicine administration. In each instance a complete amelioration of symptoms and signs was noted in the affected knee within 24 hours of the intra-articular injection of 25 mg. of hydrocortisone. In neither patient has the inflammation recurred so far, but routine interval management of gout has been carried out in both. No control injections of cortisone were attempted.

Results in Bursitis.—The similarity of inflammation of bursal sacs to that of joints has long been known. Empirically an attempt was made to treat bursitis with local injections of hydrocortisone into the bursal sac. Of the 13 patients observed, 3 had acute subdeltoid bursitis of only a few days' duration, 7 had chronic subdeltoid bursitis, of which 5 showed calcium deposits on x-ray, 1 had bilateral olecranon bursitis with rheumatoid arthritis, 1 had unilateral acute traumatic olecranon bursitis, and 1 had chronic traumatic prepatellar bursitis.

In all three cases of acute subdeltoid bursitis it was possible to aspirate a little fluid from the bursa, so it was assumed that the 15 mg. of hydrocortisone injected actually entered the bursal sac. Within three hours in each instance there was complete alleviation of pain and tenderness, and full range of shoulder motion was possible without pain. This relief has persisted to the time of writing—four months in one case and three months in the others. No other therapy was utilized. Local injection of cortisone into the inflamed bursae of two previous cases had produced no such benefit.

The results in chronic subdeltoid bursitis, however, have been much less satisfactory. In these cases it was impossible to be sure the hormone was injected into the bursal sac. Three of the patients experienced an almost complete relief of pain and return of normal range of shoulder motion after a single injection of hydrocortisone. In the other four instances, however, no relief was obtained even after repeated trials, and in two the shoulder pain was reported worse for several days after each injection.

In the case of bilateral chronic olecranon bursitis there were small rheumatoid nodules present around the margins of the sacs. The bursae contained several cubic centimeters of fluid, which was aspirated, and 25 mg. of hydrocortisone was injected into each. After this procedure the bursal effusion disappeared, and the ring of rheumatoid nodules became softer and smaller. No recurrence has been observed after six weeks. The effusion and tenderness in the olecranon bursa of the patient who had traumatized his elbow disappeared promptly after the instillation of hydrocortisone and have not recurred even after three months.

The patient with chronic prepatellar bursitis, or "housemaid's knee," obtained prompt relief and has had no recurrence of bursal effusion or tenderness five months after the injection of hydrocortisone, even though she has continued to kneel while working.

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[14] Dale, M.: Treatment of Osteoarthritis with ACTH, J. Michigan M. Soc. 49: 1068-1069 (Sept.) 1950. Boots, R. H.; Yen, L. C.; McMorrow, K. J., and Ragan, C.: Cortisone Therapy in Degenerative Joint Disease of Hip, J. A. M. A. 147: 549-551 (Oct. 6) 1951.

[15] Brown, C. Y.; Jessar, R. A., and Hollander, J. L.: Cort Treatment of Osteoarthritis of the Hips, J. A. M. A. 147: 55 6) 1951.

Not included in the summary of results is one case of a ganglion, or synovial hernia, of the wrist, into which 20 mg. of hydrocortisone was injected, with prompt disappearance of the enlargement. There has been no recurrence after eight weeks of observation.

Results in Disseminated Lupus Erythematosus.—Although local measures in this systemic disease are merely palliative, an acute exacerbation in a joint or in a serous cavity was considered worthy of local hydrocortisone administration, at least for trial.

Two young women with severe disseminated lupus erythematosus had a persistently recurring pleural effusion severe enough to embarrass respiration and requiring repeated chest aspiration for removal of the excess fluid. Both these patients had been receiving systemic cortisone therapy for some months, with fairly adequate control of the fever and joint pain.

In the first patient the left pleural cavity, which had required aspiration at least weekly, was again drained of 750 cc. of fluid. One hundred milligrams of hydrocortisone suspension was mixed with 50 cc. of the pleural exudate, which was then injected into the pleural cavity without adverse reaction. Systemic cortisone therapy has been continued. There has been no reaccumulation of the effusion in the left side of the chest after five months. The fluid in the right side of the chest, which had always reaccumulated much more slowly, gradually diminished also during the observation period.

The second patient had not required chest aspiration as frequently as the first patient, and both pleural cavities reaccumulated fluid at about the same rate. The left side of the chest was aspirated, 600 cc. of fluid removed, and 100 mg. of hydrocortisone injected. The right side of the chest was also aspirated and 500 cc. removed, but no hydrocortisone was injected. After two weeks the right side of the chest, by fluoroscopic examination and physical signs, showed reaccumulation of fluid as before, but the treated left side showed no fluid. The right side of the chest was then aspirated and 100 mg. of hydrocortisone injected. Recurrence of fluid has just been noted in both pleural cavities after four months. Reinjection has been successfully accomplished. Systemic cortisone therapy has been continued. No local cortisone injections into the chest cavity have been tried so far.

In the third patient with disseminated lupus erythematosus, in addition to her other symptoms, an acute swelling of the left knee had recently developed. This was aspirated and 25 mg. of hydrocortisone injected. Within 12 hours all signs of the local inflammation had subsided, with no return as yet (9 weeks).

Results in Inflammatory Eye Disease with Arthritis.—One patient with Sjögren's syndrome (keratoconjunctivitis sicca) and three with chronic episcleritis as complications of rheumatoid arthritis were treated with eye drops of hydrocortisone, since topical and parenteral cortisone therapy had failed to relieve the inflammation. The drops contained 5 mg. of hydrocortisone per cubic centimeter (1:5 dilution of the standard suspension with isotonic sodium chloride solution).

In none of the four patients was improvement rapid, often requiring a week or 10 days to become evident.
One of the four showed no improvement after th
weeks, so the treatment was discontinued. In three of
four patients the subsidence of inflammation by the
of two weeks was obvious. In the patient with Sjögr
syndrome the punctate ulcerations on the cornea c
pletely disappeared, and the lacrimal secretion actu
increased to overabundance. In the two patients
chronic episcleritis the conjunctival inflammation alm
completely disappeared, vision improved, and the sy
toms were relieved as long as the drops were contin
but recurred within a week when cortisone drops
substituted.

COMMENT

The reason for the difference in effectiveness betw
cortisone and hydrocortisone given locally is unkn
Since hydrocortisone is only one-seventh as solub
plasma as cortisone, it might diffuse less rapidly
thus become a local "reservoir" of anti-inflamm
hormone within the joint space. However derived,
certainly is a physiological difference between the
mones, at least at the tissue level.

The failure of hydrocortisone to produce an a
ciable antiarthritic effect when injected outside the
vial sac is probably because such injections do not
all the inflamed synovial tissue.

Whereas in patients with rheumatoid arthriti
systemic nature of the disease and usual multip
of involved joints would often make local therap
practical, in the following types of patients therap
benefit from injection of hydrocortisone into one or
involved joints has been observed: (1) those pa
with only one or two peripheral joints involved
those in whom only a few peripheral joints were
actively inflamed, even though others have been
losed; (3) those in whom use of cortisone or co
tropin was contraindicated because of psychosis,
tension, cardiac decompensation, nephritis, tuberc
etc., or because of economic inability to permit
therapy (in such instances the local injections re
the symptoms in a few of the worst joints); (4) th
whom use of cortisone or corticotropin has had
withdrawn because of insufficient effect, untoward
tions, or for economic reasons (in such patients the
alleviation of symptoms in the worst joints tapere
effects of withdrawing hormone treatment); (5)
in whom use of cortisone or corticotropin has pro
a desirable amelioration of rheumatoid arthritis e
in a few of the most severely involved joints (in
patients the systemic therapy with hormone was
tinued, and hydrocortisone was administered pe
cally into the resistant joints as supplementary
ment); (6) those in whom a sudden exacerbati
inflammation has occurred in one or a few joints
whom orthopedic correction of joint deformity had
or was to be, undertaken (in these patients the m
served as an aid in local rehabilitation).

That the beneficial effect of use of hydrocort
locally is nonspecific is borne out by its effectiven
a variety of inflammations from different causes. A
ently this method offers no cure for the inflamm
process, and hydrocortisone may merely be an all
ing agent which temporarily suppresses the local rea
to an irritant. Diagnosis must obviously be establ

efore this method is used, particularly if an infectious tiology is suspected. Use of local hydrocortisone may e contraindicated in the presence of infection, unless pecific antibiotics are used concomitantly..

In the arthritic patients included in this report, only upportive therapeutic procedures have been utilized conomitantly with the local hydrocortisone injections, uness otherwise specified. The method has so far proved f little value in patients with spinal joint involvement or hen many peripheral joints are inflamed.

Before this method for producing amelioration of ocal inflammation can be called a practical aid in mangement of disease, it must stand the test of time. In both heumatoid arthritis and osteoarthritis the local use of ydrocortisone has proved of practical value on repeated njection for periods up to eight months in a relatively rge series of patients. The long-range effect must still e determined, but certainly there have been no detriental effects as yet observed.

It is more difficult to draw conclusions from the results f local therapy with hydrocortisone in the other condions treated. The periods of observation have been short, nd the number of patients in each disease group insuffiient. Nevertheless, these early encouraging results sugest a much more widespread usefulness for locally dministered hydrocortisone, which certainly warrants rther clinical investigation.

It appears likely that hydrocortisone will become vailable to the physician within a relatively short time, ven though present supplies are insufficient for all exerimental needs. The amount needed for local injection, bout 25 mg. per joint per week, would be so small that e cost should present no great economic problem to e patient.

SUMMARY

Injected locally, hydrocortisone (17-hydroxycorticosterone or compound F) is much more effective than cortisone in suppressing the synovial inflammation of rheumatoid arthritis. The reason for this difference is unknown. Nearly 700 injections of hydrocortisone have been made into the joints of 129 patients without untoward effects. In 69 patients with rheumatoid arthritis injection of hydrocortisone into one or more joints has resulted in prompt local alleviation of symptoms and signs. The completeness of improvement has varied considerably, and the duration of benefit from each injection has varied from a few days to several weeks. Repeated injections have been equally effective. In 39 patients with osteoarthritis, injections of hydrocortisone into one or more joints has resulted in prompt relief of symptoms and signs. There has been consistently greater relief for longer periods in this condition than observed in rheumatoid arthritis. Repeated injections are equally effective and may maintain remission of symptoms for long periods. Preliminary trials with use of hydrocortisone locally in cases of various forms of bursitis, gouty arthritis, disseminated lupus erythematosus, traumatic arthritis, and ocular inflammations complicating rheumatoid arthritis have been encouraging. There has been an absence of systemic effects and adverse reactions from this local method of utilizing hydrocortisone. Cessation of injections has not been followed by exacerbations of the local inflammation but only by gradual relapse to pretreatment status. These observations suggest that the local administration of hydrocortisone may be of practical value in the management of certain local inflammatory states.

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MANAGEMENT OF TETANUS

EFFECT OF PENICILLIN ON CLOSTRIDIUM TETANI IN VIVO

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The most important objectives in the management of etanus are: (1) neutralization of free toxin with tetanus ntitoxin; (2) elimination of the source of toxin by ébridement of all accessible portals of entry or by adninistration of antibiotics; (3) prevention of convulions and severe muscle spasms by use of sedatives, nesthetics, or such muscle relaxants as curare preparaions and, preferably, mephenesin; (4) maintenance of fficient hydration and of electrolyte balance; (5) mainenance of proper nutrition, and (6) prevention and treatment of pulmonary complications through maintenance of unobstructed air passages by mechanical means and by administration of antibiotics.

Most observers [1] agree that 50,000 units of tetanus antitoxin given intravenously is a dose large enough to neutralize all the unfixed or free toxin in any patient with a chance of recovery. Since it is impossible to ascertain whether fixation of the toxin by the cells of the central nervous system is progressing, and since symptoms may arise from fixation of a sublethal dose of toxin, it is advisable to administer 10,000 units of antitoxin intramuscularly for the first four or five days. This prevents fixation by the central nervous system of a dose sufficiently large to be fatal. The latter aspect of tetanus treatment has been discussed by Firor and colleagues,[1e] Schumacker and others,[1f] Firor himself,[1g] and Firor and Jonas.[1h] Administration of 200,000 units of tetanus antitoxin intrathecally, although of great benefit, is impractical, since general anesthesia or curarization is required in the majority of severe cases of tetanus presenting fre-

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quent convulsions and opisthotonos. Besides, tetanus antitoxin may lead to untoward reactions when given by this route.

The tissues around the portal entry should be infiltrated with 10,000 units of tetanus antitoxin, and after one hour débridement with wide excision of all the necrotic tissue at the portal of entry is advisable. The antitoxin will neutralize the toxin in the lesion and around it, thus preventing its diffusion and dissemination during débridement. Removal of necrotic tissue will reduce the multiplication of Clostridium tetani, and exposure of the lesion to air may help in altering the metabolism of the bacillus, since it is an anaerobic saprophyte.[2]

Treatment of convulsions is always a major problem in severe cases. Phenobarbital (luminal®) sodium in intramuscular doses of 0.13 gm. every two or three hours is beneficial. Large rectal doses of chloral hydrate, paraldehyde, or ether in oil can be used. Simple methods failing, the physician may resort to such muscle relaxants as mephenesin or curare preparations, but their use requires constant medical attention and the administration of the latter is fraught with danger.

The patient with tetanus loses great amounts of water and sodium chloride by perspiration and respiration. This, coupled with dysphagia, leads, in severe cases, to extreme dehydration. Although it is not always possible to measure the fluid and electrolyte requirements in every case of tetanus, the daily intravenous administration of 2,000 to 4,000 cc. of isotonic sodium chloride solution will prevent clinical signs of dehydration and acidosis in most cases.

The extreme restlessness, convulsions, fever, and overwhelming toxemia observed in severe cases of tetanus lead to an increase in body metabolism, with a corresponding increase in caloric requirements. In many instances the addition of 5% dextrose to the intravenous fluids suffices, but markedly debilitated patients may require feeding by stomach tube. The feedings should consist of substances yielding readily usable calories, such as carbohydrates. The constant pressure of the stomach tube in the nasopharynx, however, may increase the frequency and severity of the convulsions, provoke severe and prolonged laryngeal spasms, and lead to overproduction and aspiration of secretions, all of w might result in pulmonary complications.

Preventing pulmonary complications is mainly a chanical problem. The cough reflex is depressed, the respiratory excursions are limited; strong seda increases the likelihood of aspiration of secretions f the upper respiratory tract. The respiratory path can be maintained patent by frequent suction, raising foot of the bed for drainage, and, in the severest case tracheotomy. Removal of secretions may prevent d from asphyxia or aspiration pneumonia.

If there is no response to frequent suction and i recurrent spasms of the thoracic and laryngeal mu cannot be controlled, tracheotomy should be resorte This procedure, done under local anesthesia, will p by-passing of the secretions of the mouth, pharynx larynx; it will neutralize the effects of the lary spasms and will permit the direct removal of secre already aspirated into the trachea and bronchi. I also allow direct flow of oxygen into the lungs thr the tracheal tube, by-passing the obstruction caus laryngeal spasms, and will render the use of a resp more practical in case of impending respiratory par

Since not all portals of entry are accessible and not all accessible portals can be properly débrid specific antibiotic is needed. Eradication of the te bacillus eliminates the very source of productio diffusion of tetanus toxin. Removal of other ba sensitive to antibiotics from the infected wound tributes to improvement in the healing processes may lead to further interference with the metabol quirements of Cl. tetani. The role of a potent anti in prevention and management of pulmonary com tions is also emphasized.

Penicillin has been recommended as a valuable vant in the management of tetanus for its effect i venting secondary bacterial infections and on the g and multiplication of Cl. tetani at the portal of e Since there is enough evidence to show that penici an antibiotic for Cl. tetani,[4] we have been promp study the behavior of the bacillus in vivo when p doses of the drug are administered.

MATERIAL AND METHODS

From November, 1948, to January, 1950, 32 pa suffering from tetanus were admitted to the San City Hospital. Seventeen, in whom repeated cultur Cl. tetani were made, were selected for the present There were 11 white patients, of whom six were me five women; three Negroes, two men and one wo and three mulatto men. The youngest was 13 yea and the oldest 82, with an average of 31 years. were eight patients of 20 or younger, 12 under 3 under 40, 15 under 50, and two over 70.

The approximate incubation period was known instances: in three it was five days; in one, five days; in two, 10 to 15 days, and in four, 15 to 21 The average was 12.2 days.

The portal of entry was evident in all: in the f eight; in the ankle in three; in the leg in four; in th in one, and in the neck in one. The nature of the l was discovered in all: puncture wounds in six; la

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1. (*a*) Abel, J. J.: On Poisons and Disease and Some Experiments with the Toxin of the Bacillus Tetani, Science **79**: 121, 1934. (*b*) Abel, J. J.; Hampil, B., and Jonas, A. F., Jr.: Researches on Tetanus: III. Further Experiments to Prove that Tetanus Toxin is Not Carried in Peripheral Nerves to the Central Nervous System, Bull. Johns Hopkins Hosp. **56**: 317, 1935. (*c*) Abel, J. J.; Firor, W. M., and Chalin, W.: Researches on Tetanus: IX. Further Evidence To Show That Tetanus Toxin Is Not Carried to Central Nervous System by Way of the Axis Cylinders of Motor Nerves, ibid. **63**: 373, 1938. (*d*) Abel, J. J.; Evans, E. A., Jr., and Hampil, B.: Researches on Tetanus: V. Distribution and Fate of Tetanus Toxin in the Body, ibid. **59**: 307, 1936. (*e*) Firor, W. M.; Lamont, A., and Schumacker, H. B., Jr.: Studies on the Cause of Death in Tetanus, Ann. Surg. **111**: 246, 1940. (*f*) Schumacker, H. B.; Firor, W. M., and Lamont, A.: The Therapeutic Use of Antitoxin in Experimental Tetanus, Surgery **8**: 1, 1940. (*g*) Firor, W. M.: The Prevention and Treatment of Tetanus, Am. J. Surg. **46**: 450, 1939. (*h*) Firor, W. M., and Jonas, A. F., Jr.: Researches on Tetanus: VI. Production of Reflex Motor Tetanus by Intraspinal Injection of Tetanus Toxin, Bull. Johns Hopkins Hosp. **62**: 91, 1938.

2. Dubos, R. J.: Bacterial and Mycotic Infections of Man, Philadelphia, J. B. Lippincott Company, 1948, pp. 363-366.

3. Díaz-Rivera, R. S.; Delíz, L. R., and Berio-Suárez, J.: Penicillin in Tetanus: A Clinical Analysis of 59 Cases, J. A. M. A. **138**: 191 (Sept. 18) 1948.

4. (*a*) Weinstein, L., and Wesselhoeft, C.: Penicillin in Treatment of Tetanus: Report of 2 Cases, New England J. Med. **233**: 681, 1946. (*b*) The mephenesin was furnished by E. R. Squibb & Sons.

ions in two; ulcers in six; a draining abscess of the neck n one; a draining ear in one, and a burn in one.

The disease was classified as generalized tetanus in 15 and cephalic tetanus in two. Fifteen had convulsions, ither on admission or afterward. The time between the nset of the disease and the appearance of convulsions vas known in 12 cases; in two within the first day; in wo within two days; in two within three days; in three vithin four days; in one within five days; in one within ix days, and in one within nine days.

On admission all patients received 100,000 units of etanus antitoxin intravenously and an equal amount ntramuscularly after a negative reaction to a dermal test or sensitivity. After infiltrating the surrounding tissues vith 10,000 to 20,000 units of tetanus antitoxin, tissue nd other material, including pus when present, were obained from the portal of entry for anaerobic culture of l. tetani in thioglycolate and cooked meat media. No ide or extensive débridement was attempted; the ound was left open, and was covered with sterile gauze. o local medication was tried. Crystalline sodium penillin G (Squibb) was then administered in doses of 0,000 units intramuscularly every three hours, and the tal dose of the drug was not limited. Two thousand 4,000 cc. of 5% dextrose in isotonic sodium chloride lution was given intravenously in accordance with the atient's needs for hydration, and phenobarbital sodium doses of 0.13 gm. or more every two or three hours as given hypodermically for the control of convulsions.

TABLE 1.—*Summary of Nine Cases with Positive Cultures for Clostridium Tetani*

Case	Age, Yr.	Sex	Race	Portal of Entry	Site of Lesion	Duration of Lesion	Cultures on Admission	Additional Cultures: Hours 24	48	72	120	29 Days	Local Penicillin	Pulmonary Complications	Outcome
1	14	M	M	Puncture wound	Ankle	4 days	+	—	—	—	—	—	No	No	Recovery
2	50	F	W	Ulcer	Ankle	8 mo.	+	+	+	—	—	—	No	No	Recovery
3	17	M	W	Laceration	Toe	21 days	+	—	—	—	—	—	No	No	Recovery
4	29	M	W	Puncture wound	Foot	4 days	+	—	—	—	—	—	No	Yes	Recovery
5	20	M	M	Laceration	Toe	21 days	+	+	—	—	—	—	No	No	Recovery
6	19	M	N	Otitis media	Ear	16 days	+	—	—	—	—	—	No	No	Recovery
7	38	M	W	Puncture wound	Foot	14 days	+	+	+	+	+	+	Yes	Yes	Recovery
8	19	M	W	Draining abscess	Neck	2 days	+	—	—	—	—	—	No	Yes	Death
9	29	F	W	Puncture wound	Toe	18 days	—	—	+	—	—	—	No	No	Recovery
verages	26 yr.					12.5 days									Mortality 11%

ABLE 2.—*Nature and Duration of Lesions, with Percentage of Positive Cultures*

		Results of Cultures			Average Duration of Lesions	
Type of Lesion	Cases	Positive	Positive, %	Negative	Positive	Negative
uncture wounds..	6	4	66.6	2	10 days	11 days
lcers..............	6	1	16.6	5	8 mo.	4.6 yr.
acerations........	2	2	100.0	0	21 days	Unknown
rained abscess....	1	1	100.0	0	2 days	Unknown
titis media.......	1	1	100.0	0	16 days	Unknown
urn..............	1	1	0.0	1	Unknown	1 mo.
Total...........	17	9	Av. 63.9	8		

aily intramuscular injections of 10,000 units of tetanus ntitoxin were administered for three consecutive days fter admission. Anaerobic cultures from tissue and pus btained from the portals of entry were made 24, 48, 72, nd 120 hours after the initiation of therapy. In one case, umerous cultures were done in a period of 30 days.

RESULTS

There were eight positive and nine negative cultures initially; of the positive, five were negative 24 hours later and thereafter; two were positive at the end of 48 hours; of the latter two, one was negative in 72 hours and the other in 29 days. Of the negative initial cultures, one was reported as positive 48 hours later, but it was negative in 72 hours (Table 1).

Thus, 47% of the cases showed positive cultures on admission; 18% in 24 hours; 18% in 48 hours; 6% in 72 hours, and 6% in 120 hours after the initiation of treatment with penicillin. Sixty-two per cent of the positive cultures were negative within one day, 75% within the second day, and 87.5% within the third day (Table 1).

The average duration of lesions yielding positive cultures was 12.5 days; of those with negative cultures, more than two years. It appears from this that the older the lesion the more difficult it is to recover Cl. tetani. Extensive ulcers and a burn covering a large area failed to yield positive cultures, while in the well-localized lesions the bacillus was easily found. However, there were two instances of deep puncture wounds in the sole of the foot with negative cultures. Demonstration of positive cultures was as follows: lacerations yielded 100%; suppurating lesions (an incised abscess of the neck and an acute otitis media), 100%; puncture wounds, 66.6%, and the ulcers and a burn 14.3%. It can be concluded that recent, well-localized, small, shallow, suppurating lesions are richer and more available sources of Cl. tetani than are extensive, chronic, or very deep lesions. The taking of material for culture from multiple areas in extensive lesions may have led to positive cultures in some of our cases, since in these the exact point where the bacillus was multiplying was very difficult to ascertain. Débridement with excision of tissue from the very depths of the puncture wounds may have helped in the isolation of Cl. tetani (Tables 2 and 3).

Cultures for Cl. tetani remained positive for 29 days in one patient. A summary of the clinical course is included to illustrate the many factors involved in eradicating an infection with this organism.

REPORT OF CASE

CASE 1.—J. S. L., a 38-year-old white, Puerto Rican vendor, [illegible] a puncture wound in the sole of with a [illegible] on April 6, 1949. On April 1 dysphagia, trismus, and painful spasms of the muscles of the neck, abdomen, and legs. On April 17 frequent generalized convulsions appeared, forcing his admission to the hospital on April 20. His past and family histories were noncontributory. He denied having received tetanus antitoxin or penicillin during, or prior to, his present illness.

Physical examination revealed a well-developed, poorly nourished white man presenting marked rigidity of the cervical muscles and a risus sardonicus. The temperature was 99.2 F., the pulse 120, the respirations 28 per minute, and the blood pressure 120/94. The muscles of the back, abdomen, and legs were markedly spastic, and the patellar, ankle, biceps, and triceps reflexes were hyperactive. A hardened, cornified area about 2 cm. in diameter was found in the sole of the left foot; in the center of this area was a partially healed, small puncture wound draining small amounts of pus. There were frequent generalized convulsions during the examination.

The red blood cell count was 5,160,000 with 103% hemoglobin. The white blood cell count was 11,200 per cubic millimeter, with normal differential values. The urine was normal, except for traces of albumin.

The patient received 100,000 units of tetanus antitoxin intravenously and 100,000 units intramuscularly on admission. He was given phenobarbital sodium in doses of 0.13 gm. intramuscularly every three hours, and 4,000 cc. of 5% dextrose in isotonic sodium chloride solution intravenously every 24 hours. Ten thousand units of tetanus antitoxin were administered intramuscularly for each of three consecutive days. The tissues around the suspected portal of entry were infiltrated with 10,000 units of tetanus antitoxin, and a small piece of the cornified tissue was obtained for culture of Cl. tetani before parenteral administration of 30,000 units of crystalline sodium penicillin G every three hours was initiated.

TABLE 3.—*Summary of Eight Cases with Negative Cultures for Clostridium Tetani*

Case	Age, Yr.	Sex	Race	Portal of Entry	Site of Lesion	Duration of Lesion	Local Penicillin, Units	Pulmonary Complications	Outcome
1	17	M	M	Ulcer	Leg	6 yr.	None	No	Recovery
2	18	M	N	Ulcer	Ankle	10 mo.	50,000	No	Recovery
3	73	M	W	Ulcers	Leg	10 yr.	None	Yes	Death
4	13	F	C	Ulcer	Leg	6 wk.	None	No	Recovery
5	23	F	W	Ulcers	Leg	3 mo.	None	No	Recovery
6	39	F	W	Puncture wound	Foot	14 days	20,000	Yes	Death
7	82	M	M	Puncture wound	Foot	8 days	20,000	Yes	Death
8	30	F	W	Burn	Foot	1 mo.	—	—	Recovery
Average age	37 yr.							Mortality	37.5%

Because of the severity of the convulsions, on April 22 the patient was started on 50 cc. of 2% solution of mephenesin (tolserol®) intravenously every eight hours.[4b] He exhibited little lasting improvement, in spite of its continuous use for 14 days. On April 24 he developed a dry, hacking cough. On April 25 the temperature rose to 102 F., and there were dullness to percussion, diminished breath sounds, and moist rales over the left lower lung posteriorly. At this time he was started on daily intramuscular 1-gm. doses of streptomycin, for eight days.

TABLE 4.—*Results of Cultures for Clostridium Tetani (Case 1)*

Date	Penicillin, I. M.	Penicillin, Local	Streptomycin, I. M.	Culture
April 20	Yes	None	No	*Positive*
April 21	Yes	None	No	Positive
April 24	Yes	20,000 units	Yes	Positive
May 1	Yes	20,000 units	Yes	Positive
May 18	Yes	100,000 units	No	Positive
May 19	Yes	None	No	Negative
May 20	Yes	None	No	Negative

On April 26 the spasticity of the muscles had diminished considerably, and the convulsions were milder and less frequent. During the next 10 days the temperature ranged from 100 to 104 F., and the pulmonary findings persisted until May 7. Sedation was stopped on May 18, and penicillin on May 20, but the trismus and rigidity of the neck muscles remained until June 2. The patient was discharged as cured on June 4, 1949.

The results of cultures for Cl. tetani in this patient are presented in Table 4.

*From the data presented in this case it can be con*cluded that parenteral penicillin failed to eradicate enough Cl. tetani in time to check production of tetanu toxin in an amount *sufficient* to cause serious clinica *manifestations*. Penicillin was also of no value in preven ing the development of aspiration pneumonia, but strep tomycin appears to have helped in curing the latte complication.

The fact that the lesion was located in a cornified are with poor blood supply may explain the failure of paren teral penicillin to check the infection with Cl. tetan since this was not achieved until penicillin was give locally and in heavy doses. The *serious manifestatio* of tetanus in this case suggest that the power of diffusio of tetanus toxin through tissues with a poor blood supp is much higher than that of penicillin, and gives suppo to the advisability of local use of the drug.

Perhaps complete excision of the cornified area wou have been a more satisfactory method of treating t local infection, since the localization of the lesion in area almost *devoid of blood and oxygen supply* mig have contributed to the continued growth of the bacill

The amount of toxin fixed by the central nervous sy tem, although sublethal, was large enough to cause se ous manifestations. The body defenses were responsi for this patient's recovery, aided by the antibioti which checked and prevented secondary infections.

The failure of mephenesin adequately to control co vulsions in this patient emphasizes the variable toleran to the drug. In all probability, heavier doses would ha been more effective.

There was one death among the patients with positi cultures. This fatality will be presented in detail to illu *trate the dangers* of rapid fixation of large amounts tetanus toxin by the cells of the vital centers of the centi nervous system, and the complications that may ensu

REPORT OF CASE

CASE 2.—A. S., a 19-year-old Puerto Rican laborer, had dev opment of a small abscess of the right side of the neck. T abscess was incised and drained in the surgical dispensary of t San Juan City Hospital on Dec. 19, 1949, and the patient turned to work on the same day. On Dec. 21 he developed pa and stiffness of the jaw, and on Dec. 23 dysphagia and rigidi of the cervical muscles. On Dec. 24 the muscles of the back and abdomen were involved, and frequent, generalized, and painful muscle spasms appeared. These increased in severity, forcing his hospitalization on Dec. 25. The past and family histories were noncontributory. He denied receiving penicillin or tetanus antitoxin either before or during his present illness.

On physical examination the patient was found to be in great distress because of marked rigidity of the neck, back, and abdominal muscles, severe trismus, and dysphagia. The temperature was 99 F., the pulse 96, the respirations 30, and the blood pressure 120/80. A dirty-looking, almost completely healed, 1-in. (2.54-cm.) long surgical incision was found in the right submaxillary region. The heart and lungs were normal. There was spasm of the muscles of the abdomen, back, neck, and face. Frequent episodes of transitory, painful, generalized muscle spasms were observed during the examination.

The red blood cell count, hemoglobin, and white blood cell count, as well as the urine, were normal. The blood test for syphilis was negative.

He received 100,000 units of tetanus antitoxin by vein and 100,000 units intramuscularly. Three thousand cubic centimeters of 5% dextrose in isotonic sodium chloride solution were administered intravenously every 24 hours, and phenobarbital sodium, in doses of 0.13 gm., was given intramuscularly at three-hour intervals for the control of convulsions and severe muscle spasms. The wound of the neck was reopened after the infiltration of the surrounding tissues with 10,000 units of tetanus toxoid, and pus and necrotic tissue were obtained for culture of Cl. tetani. Later, treatment was continued with 30,000 units of crystalline sodium penicillin G intramuscularly, every three hours, and 10,000 units of tetanus antitoxin were given daily for three consecutive days. Anaerobic cultures of the pus and necrotic tissue from the portal of entry were repeated 24, 48, and 72 hours after the initiation of penicillin therapy. The culture on admission was reported as positive; those taken later were negative.

Severe muscle spasms continued unabated despite heavy sedation. On Jan. 4 (15 days after onset and 10 days after hospitalization) the temperature rose to 105 F. within a period of 24 hours. On Jan. 5 the patient was delirious, his breathing was rapid, and examination of his chest revealed multiple coarse rales and rhonchi bilaterally. Since it was evident that he had aspirated large amounts of secretions from the upper respiratory tract, suction was tried, but to no avail. On the same day the patient suddenly developed severe cyanosis, the respirations became stertorous and labored, and he died one-half hour later. Death probably was caused by asphyxia resulting from accumulation of large amounts of secretions in the trachea and bronchi, with persistent laryngeal spasm perhaps playing a part. Permission for autopsy was denied.

The fertile media (pus and necrotic tissue) in which Cl. tetani grew and multiplied in this case guaranteed abundant production of tetanus toxin. From the start it was recognized that a large amount of toxin must have been fixed by the vital centers of the central nervous system, leading to a severe case of cephalic tetanus. Cl. tetani had gained entrance through an incised abscess which was almost completely healed on the patient's admission to the hospital. Since aseptic technique was employed by the surgeon in this minor operation, it can be concluded that infection with the tetanus bacillus occurred later, upon exposure to dirt. It is possible that penicillin, administered for two days after operation might have prevented the disease, since the portal of entry was freed of Cl. tetani within 24 hours after use of penicillin.

The efficiency of penicillin as an antibiotic for Cl. tetani is recognized in this case, but it was useless in the prevention of pulmonary complications. The excessive secretions obstructing the trachea and bronchi, the aspiration penumonia, and the sustained laryngeal spasm would perhaps have been prevented by tracheotomy. Had respiratory paralysis supervened from depression of the respiratory center, as in bulbar poliomyelitis, the use of a respirator or tracheotomy, and suction of the aspirated secretions would have been the procedure of choice.

A case with a rare portal of entry from which Cl. tetani was isolated, and in which penicillin served to eradicate the infection, is hereby presented to illustrate the difficulties of diagnosis and the benefits of early treatment.

diagnosis was not obtained until the picture of tetanus was evident, but it seems that the amount of toxin fixed by the central nervous system was enough to cause only moderately severe symptoms. Rapid recovery ensued in a case that, if not properly treated, would have culminated in death. The effect of penicillin as an antibiotic for Cl. tetani is clear. (We consider crystalline potassium penicillin G more stable than the salt.) The infection was probably limited to the middle ear, not extending to the mastoid cells. It is possible that the free drainage and availability of oxygen in this site may have deferred the growth of Cl. tetani.

Of the six patients in this series in whom pulmonary complications developed, four (60%) died. All the measures used in prevention and treatment of these complications failed to avert a fatal outcome in these cases. The two patients older than 70 (one was 73, the other 82 years old) died, emphasizing the poor prognosis for tetanus among the aged.

The gross mortality rate was 23.5%, in spite of (1) use of penicillin, (2) efficient eradication of the focus of infection of Cl. tetani without débridement, (3) large amounts of tetanus antitoxin, and (4) good sedation, efficient hydration, and adequate electrolytic balance. Failure to maintain the upper respiratory passages unobstructed by tracheotomy and the use of a respirator may account for some of the fatalities. It must be emphasized that the gross mortality rate in this small series is similar to that (20.3%) reported from this same institution [3] under essentially similar conditions, but with emphasis on surgical débridement.

COMMENT

Cl. tetani is a saprophyte and an obligate anaerobe, whose multiplication in vivo is governed, among other factors, by the presence of necrotic tissue, anaerobic conditions, pyogenic organisms, and small amounts of calcium salts that lower the oxidation-reduction potential of tissue.[5] The bacillus is not invasive, and frequently the infection remains localized in a small area. One milligram of purified and crystallized tetanus toxin contains 6,400,000 lethal mouse doses, so that its toxic potency is second only to that of Clostridium botulinum.[6] Fixation of a certain amount of this powerful toxin by the cells of the central nervous system leads invariably to death. (For further description you are referred to Firor and others,[1e] Schumacker and others,[1f] Firor,[1g] and Firor and Jonas [1h]).

It is generally recognized that the local and general symptoms of tetanus are caused by toxemia, at times overwhelming, which occurs when multiplication of Cl. tetani is rapid or prolonged. In those circumstances, there is marked diffusion of toxin and massive fixation by the cells of the central nervous system. The most important therapeutic indications, therefore, seem to be neutralization of free toxin and detention of its production.

Neutralization of free toxin does not eliminate the possibility of further production, however, and treatment with repeated daily injections of antitoxin is not always safe, since the dangers of antitoxin sickness impose limitations on the duration of treatment.

The ideal procedure would be to eradicate the source of toxin. This can be done in some instances by wide excision of the portal of entry, when accessible. Not all portals of entry, however, are easily accessible: for example, those located in the mouth, rectum, or anus. Others, like the middle ear, cannot be excised. Some remain undiscovered. Many would require major surgical intervention, as in endometritis, extensive chronic ulcers or lacerations, large abscesses resulting from intramuscular injections, osteomyelitis, etc. In still other cases, numerous lesions are suspected, but the one responsible for growth of Cl. tetani cannot be localized with ease. In more than 100 cases of tetanus we have found that a little over 50% of the portals of entry are approachable for débridement, and that the procedure per se does not eliminate the infection in every case.

Other measures for preventing multiplication of Cl. tetani should be sought for. The data presented herewith tend to demonstrate that penicillin is a powerful antibiotic against the tetanus bacillus and that eradication of the infection can be attained, in the majority of instances, within 24 hours after initiation of parenteral therapy. They also suggest that its use locally in large doses may be of benefit.

This is substantiated by the disappearance of Cl. tetani from ulcers, lacerations, a draining ear, and an incised abscess within a period of not more than three days after institution of antibiotic treatment without débridement. In only one instance was there evident need for wide excision of the affected tissues, and even in this case favorable results were achieved by local injection of moderately large doses of penicillin in an area almost devoid of blood supply.

Another action of penicillin that may help to retard the growth of the tetanus bacillus is its powerful bacteriostatic effect against gram-positive cocci, responsible for the formation of pus, which favors multiplication of the bacillus.

It appears that administration of penicillin early in the course of the disease can check its progress by eliminating production of toxin, thus preventing further fixation of toxin by the central nervous system. With an antibiotic capable of rapid and efficient bacteriostasis it might be possible to avoid administering antitoxin, aside from that given initially to neutralize free toxin in the body, and perhaps even to avoid débridement. If the presence of pyogenic organisms at the portal of entry of the tetanus bacilli is as important for the latter's action as is generally accepted, then it is even possible that such an antibiotic might be useful in tetanus prophylaxis. Whether or not penicillin can fulfill these demands must await further investigation.

While penicillin is useless in the prevention of the diffusion or fixation of tetanus toxin, it does prevent certain bacterial pulmonary complications and cures others. Together with streptomycin, it aided in the control and cure of aspiration pneumonia in one of our patients. Our experience with this case and others,

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5. Fildes, P.: Tetanus: IX. The Oxidation-Reduction Potential of the Subcutaneous Tissue Fluid of the Guinea-Pig; Its Effect on Infection, British J. Exper. Path. **10**: 197, 1929.

6. Pickett, M. J.; Hoeprich, P. D., and Germain, R. O.: Purification of High Titer Tetanic Toxin, J. Bact. **49**: 515, 1945. Pillemer, L.; Wittler, R., and Grossberg, D. B.: The Isolation and Crystallization of Tetanal Toxin, Science **103**: 615, 1946.

lthough limited, is that development of pneumonia durng penicillin therapy in the course of tetanus is an indiation for use of streptomycin, since, in all probability, he infection is due to gram-negative bacteria, amenable o therapy with streptomycin.

Antibiotics will not prevent death from mechanical bstruction of the respiratory passages, respiratory ailure arising from depression of the respiratory center, r asphyxia resulting from prolonged laryngeal spasm. hese complications can be prevented only by mechanial means, such as suction of the tracheal and bronchial ecretions, tracheotomy, and use of the respirator. There evidence to suggest that deaths are preventable by these eans, even when lethal doses of toxin have been fixed y the cells of the central nervous system.[7]

SUMMARY AND CONCLUSIONS

Repeated anaerobic cultures for Clostridium tetani, aken from suspected portals of entry in 17 cases of tetaus, before and after administration of penicillin, yielded e following results: (1) eight positive and nine negative ultures prior to onset of treatment; (2) complete dispearance of Cl. tetani in five within 24 hours, in six ithin 48 hours, and in seven within 72 hours; (3) perstently positive cultures for 29 days in one instance, omplete sterilization being achieved only after local adinistration of penicillin; (4) one instance in which a ulture that was positive 48 hours after initiation of peniillin therapy became negative in 72 hours.

Recent, well-localized, small, shallow, suppurating sions appear to be better sources of Cl. tetani than xtensive, chronic, or deep lesions.

Penicillin seems to be a useful adjuvant in the mangement of tetanus. The beneficial effects can be attributed to its antibiotic property against Cl. tetani, causing its eradication from the portal of entry within one to four days after initiation of parenteral administration.

The elimination of the growth and multiplication of Cl. tetani prevents the production, diffusion, and fixation of tetanus toxin, and indirectly may help in preventing the progress of symptoms.

The bacteriostatic properties of penicillin justify its use in every case of tetanus, both parenterally and locally, when the portal is accessible. Its use may obviate débridement, especially in cases with suppuration or extensive lesions.

Penicillin is useful in the prevention and cure of many secondary bacterial pulmonary infections. Streptomycin is helpful in treatment of pulmonary complications caused by gram-negative bacteria. The danger, prevention, and management of pulmonary complications from mechanical obstruction of the air passages are reemphasized.

Administration of repeated doses of antitoxin after the disappearance of Cl. tetani from the portal of entry is probably a waste of time.

Neutralization of free toxin with tetanus antitoxin; administration of penicillin, even without proper débridement of the portals of entry; proper sedation; efficient hydration and electrolyte balance; proper nutrition, and maintenance of unobstructed air passages by mechanical means, including suction, tracheotomy, and use of a respirator—all these are considered to be lifesaving measures in the management of tetanus.

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[7] Turner, V. C., and Galloway, T. C.: Tetanus Treated as Respiratory Problem, Arch. Surg. 58: 478 (April) 1949.

ACQUIRED TOXOPLASMOSIS

REPORT OF SEVEN CASES WITH STRONGLY POSITIVE SEROLOGIC REACTIONS

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Since the introduction of reliable, quantitative seroogic methods,[1] cases of congenital toxoplasmosis have een diagnosed with increasing frequency. However, nowledge of the epidemiology and the pathogenesis of he disease is still deficient. It is known that the fetus is nfected in utero because symptoms are manifest at birth nd because mothers of children with congenital toxolasmosis have in all cases shown strongly positive seroogic reactions. Nevertheless, the majority of mothers ave appeared healthy, without any history of definite illness during pregnancy; on postnatal examination, no characteristic clinical signs of disease have yet been demonstrated. Consequently, we must assume the existence of a mild form of acquired toxoplasmic infection, or perhaps even a form not apparent clinically.

Besides such subclinical forms, there have been thus far only few known cases of acquired toxoplasmosis in which significant clinical signs have been present and in which the diagnosis has been verified through the isolation of Toxoplasma in animal-transmission experiments. Sabin[2] describes acute, nonsuppurative encephalitis in two children, one of whom died while the other recovered; and Pinkerton and Henderson[3] report two adult cases of an acute, fatal, systemic infection with fever, maculopapular rash, and atypical pneumonia, which simulated diseases of the typhus-spotted fever group.

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In the preparation of this paper case records from the Blegdamshospitalet, Copenhagen, and from the outpatient department of the Rigshospitalet, University of Copenhagen, as well as information concerning the home treatment of the patients, were used with the permission of Drs. H. C. A. Lassen, Eggert Møller, T. Bennike, and V. Jacobsen.

[1] Sabin, A. B., and Feldman, H. A.: Dyes as Microchemical Indicators of a New Immunity Phenomenon Affecting a Protozoon Parasite (Toxoplasma), Science **108**: 660-663, 1948. Warren, J., and Russ, S. B.: Cultivation of Toxoplasma in Embryonated Egg: An Antigen Derived from Chorioallantoic Membrane, Proc. Soc. Exper. Biol. & Med. **67**: 85-89, 1948. Sabin, A. B.: Complement Fixation Test in Toxoplasmosis and Persistence of the Antibody in Human Beings, Pediatrics **4**: 443-453, 1949.

[2] Sabin, A. B.: Toxoplasmic Encephalitis in Children, J. A. M. A. **116**: 801-807 (March 1) 1941.

[3] Pinkerton, H., and Henderson, R. G.: Adult Toxoplasmosis: A Previously Unrecognized Disease Entity Simulating the Typhus-Spotted Fever Group, J. A. M. A. **116**: 807-814 (March 1) 1941.

Since no effective specific treatment is known and since the severe lesions produced by the Toxoplasma are irreparable, the detection of the acquired disease in pregnant women would seem to be a task of primary importance.

The purpose of the present study has been to try to diagnose acquired toxoplasmosis by serologic methods such as the Sabin-Feldman serum dye test and complement fixation tests. With these tests I hoped to be able to recognize generally mild symptoms, which could be suspected as being due to toxoplasmic infection, so that further serologic investigation in similar cases might be undertaken for possible confirmation of suspicions. First, tests were made in a number of patients with fever of unknown origin. As a result, positive seroreactions for toxoplasmosis were demonstrated in a patient with generalized lymphadenopathy accompanied by fever.[4] Then other patients with "adenitis" or suspected mononucleosis were examined, and dye tests and complement fixation tests were positive in the following seven cases, five of which occurred in two familial outbreaks.

REPORT OF CASES

CASE 1.—*Clinical History.*—F. B., a boy aged 6 years, had been in good health previous to Aug. 15, 1950. For four or five days there was a nonirritant affection of the skin, consisting of close-set, pinhead-sized, whitish papules, localized to the forehead, cheeks, and chin. He had felt tired and unwell, and had had signs of a cold, in the form of serous coryza, for about two days when his temperature rose to 39.5 C (103.1 F), on Sept. 2. His general condition was poor, but no headache, nausea, giddiness, or convulsions occurred. He had no pain in the left hypochondrium, no photophobia, and no pains in the joints.

Results of Examination.—In addition to moderate congestion of the fauces unaccompanied by exudate and doubtful rigidity of the neck, the physical examination on Sept. 2 showed a generalized lymphadenitis with numerous painless, firm, discrete lymph nodes, varying in size from a pea to a hazelnut without any periglandular edema. The enlarged glands were in the occipital region on either side of the neck, particularly along the posterior-inferior border of the sternocleidomastoid muscle, in the axillas, and in the groins. Physical examination showed no other signs. Particularly, no changes in the skin or jaundice were observed. No abnormality was found in the respiratory system; there was no enlargement of spleen or liver; no neurological signs were present.

An electrocardiogram was normal. In roentgenologic examination of the skull no intracerebral calcifications were seen. Roentgenologic examination of the chest revealed the right hilus normal and the left hilus enlarged, probably due to adenitis. Ophthalmoscopy showed no signs of chorioretinitis.

Subsequent Course.—On Sept. 3 the temperature ranged from 38.5 to 38.7 C (101.3 to 101.7 F). It remained at about 38 C for the next two days and then returned to normal. On Sept. 6 aphthous stomatitis developed, localized to the palate, the buccal mucous membrane, and the lips. It subsided in the course of five or six days. By Sept. 3 or 4 the patient's general condition had improved; and he was ambulatory on Sept. 8, although still tired, pale, and irritable. He had lost 2 kg. (5 lb.) in weight. A fortnight after the onset of the disease he was completely well and mentally normal. There were no physical signs apart from the generalized adenitis, which remained unchanged as late as six weeks after the onset of the disease. Except for bed rest at home, no treatment had been instituted.

Laboratory Findings: The hemoglobin value was 90% on Sept. 16 and 95% on Oct. 19. The sedimentation rate (Westergren method) was 5 mm. per hour on Sept. 16 and 3 mm. on Oct. 19. The leukocyte count was 7,500 on Sept. 7; it was 9,700 on Sept. 16 and 8,300 on Oct. 19. The differential counts on Sept. 7, Sep 16, and Oct. 19 were as follows: unsegmented, 9%, 6.5%, an 2%, respectively; segmented neutrophils, 14.5%, 16.5%, an 18%; eosinophils, 3%, 9.5% and 8%; basophils, 0.5% on Sep 7, none on Sept. 16 and Oct. 19; large lymphocytes, 16.5%, 18% and 6.5%; small lymphocytes, 50.5%, 45%, and 59%; mon cytes, 5.5%, 4.5%, and 6.5%; plasma cells 0.5% on Sept. 7, no on Sept. 16 and Oct. 19. Many atypical lymphocytes of somewh similar appearance to those seen in mononucleosis were note

The Wassermann reaction was negative. Paul-Bunnell tes made on Sept. 7, Sept. 16, and Oct. 19 were negative. Th antistreptolysin titer on Oct. 19 was normal.

Tests for Toxoplasmosis: On Sept. 20 an occipital lymph no the size of a bean was removed. Half the node was ground in mortar with Tyrode's solution and injected intracerebrally in six mice. All survived for four weeks, and no Toxoplasma cou be isolated after two further passages in mice. The microscop examination of the lymph node showed hyperplasia especial involving the reticular cells in the follicular centers; these ce were large and pale, with large nuclei which stained intensel A great number of typical mitoses but no abnormal nuclei we seen. Among the reticulum cells there were intensely bluis black stained, well-defined granules of varying shape and si occurring partly separately and partly in clusters, which shou presumably be considered nuclear debris resulting from chromatolysis. Occassionally an eosinophilic leukocyte was see Toxoplasma-pseudocysts were not demonstrated, and there we no signs of specific inflammation or malignancy. Sabi Feldman dye test titers on Sept. 7, Sept. 16, and Oct. 19 wa 1:1,600; 1:2,400; and 1:6,250. Complement fixation titers Sept. 16 and Oct. 19 were 1:128 and 1:128.

Environment.—The patient was living in Copenhagen; t family kept no domestic animals; and the flat was not infest with rats or mice. During a vacation on a farm from June to Aug. 6 he had played with a dog and a cat. Except for transi purulent conjunctivitis in the cat, the animals had shown no sig of disease, in particular, no diarrhea. On Nov. 6 an examinati of the cat for Toxoplasmosis showed a dye test titer of 1:1 whereas the reaction in the dog was negative (< 1:10). The died a week later, but there was no opportunity for a furt examination.

An examination of the family on Sept. 16 revealed that patient's father had weak positive reactions. (The dye test 1:50 and was unchanged on Oct. 20. The complement fixati titer was 1:2 and also remained unchanged on Oct. 20.) On other hand, the patient's mother and grandparents had negat reactions, and physical examination showed nothing abnorm in particular, no enlargement of lymph nodes. Serologic tests Toxoplasmosis were strongly positive in a sister (Case 2) and a playmate (Case 3).

CASE 2.—*Clinical History.*—H. B., a girl aged 3 years, been in good health, except for diarrhea and a temperature 38.5 C (101.3 F) of 24 hours' duration on June 27, 1950. Ab Sept. 7, concurrent with her brother's illness (Case 1), she had cold with serous coryza and a slight, dry cough. There was fever; her general health remained quite unaffected; and her petite was good. No headache, eye symptoms, pain in the side, or pains in the joints occurred.

Results of Examination.—In addition to slight reddening the fauces, the physical examination on Sept. 7 showed onl generalized adenitis with numerous painless, firm, discrete lym nodes, that varied in size from a pea to a hazelnut at the an of the jaw, along the sternocleidomastoid muscle, and in axillas and groins. On Sept. 30 the generalized adenitis remain unchanged. There were no changes in the skin, no jaundice, abnormality in the respiratory system, no enlargement of sple or liver, no neurological signs.

An electrocardiogram was normal. Roentgenologic exami tion of the skull showed no intracerebral calcifications. Roe genologic examination of the chest revealed nothing abnorm Ophthalmoscopy disclosed nothing abnormal. There were signs of chorioretinitis.

Laboratory Findings: The hemoglobin value was 73% Sept. 16 and 69% on Oct. 19. The sedimentation rate was mm. per hour on Sept. 16 and 11 mm. on Oct. 19 (Westergr method). The leukocyte count was 9,300 on Sept. 7, 9,000

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[4] Siim, J. Chr.: Epidemiological Aspects of Toxoplasmosis, read before the 6th International Congress of Pediatrics, Zürich, Switzerland, July, 1950.

Sept. 16, and 9,500 on Oct. 19. The differential counts on Sept. 7, Sept. 16, and Oct. 19 were as follows: unsegmented neutrophils, 8.5%, 9%, and 4.5%, respectively; segmented neutrophils, 34%, 28.5%, and 45%; eosinophils, 2%, 3%, and 2%; arge lymphocytes, 7.5%, 7%, and 4.5%; small lymphocytes, 12.5%, 50%, and 42.5%; monocytes, 5.5%, 2.5%, and 1.5%. The Wassermann reaction was negative. Paul-Bunnell tests on Sept. 7 and Oct. 19 were negative. The antistreptolysin titer on Oct. 19 was 1:250.

Tests for Toxoplasmosis: Dye test titers on Sept. 7, Sept. 20, nd Oct. 19 were 1:800, 1:2,000 and 1:6,250, respectively. Complement fixation titers on Sept. 7, Sept. 16, and Oct. 19 were :128, 1:128 and 1:128.

CASE 3.—J. M., a boy aged 15, had spent his summer vacaion from June 24 to Aug. 6, 1950, with patients F. B. and H. B. Cases 1 and 2). He had Little's disease but was otherwise in ood health. He had displayed no symptoms of any kind. Physial examination on Sept. 7 showed a generalized adenitis with ainless, firm, discrete nodes the size of hazelnuts in the neck, xillas, and groins. There were no other abnormalities except the igns of Little's disease.

Laboratory Findings: The hemoglobin value was 94% on ept. 20. The sedimentation rate was 9 mm. per hour (Westerren method). The leukocyte count was 7,500. The differential ount was unsegmented leukocytes, 11.5%; segmented leukoytes, 25.5%; eosinophils, 3.5%; large lymphocytes, 7.5%; small ymphocytes, 47.5%; monocytes, 4.5%. There were a number of ightly atypical lymphocytes with increased basophilia of the ytoplasm. The Wassermann reaction was negative. The antireptolysin titer was normal on Oct. 28. Paul-Bunnell tests on ept. 20 and Oct. 28 were negative.

Tests for Toxoplasmosis: Dye test titers on Sept. 20 and Oct. 8 were 1:1,250 and 1:6,250. Complement fixation titers on ept. 20 and Oct. 28 were 1:128 and 1:64.

CASE 4.—*Clinical History*.—R. P., a girl aged 8 years, had een in good health previously to the disease for which she was dmitted to the hospital. Since the beginning of October, 1950, he patient had complained of great fatigue and had had a ight, dry cough and serous coryza. On Oct. 6 she had thin, mucous diarrhea without any admixture of blood, but with s many as 10 stools in the 24 hours. The temperature, which as not taken until Oct. 12, fluctuated between 37.5 and 40.2 (99.5 and 104.4 F) for the next fortnight. There had been o headache, disturbances of vision, neurological signs, articular ffections, or urinary symptoms. The patient was first seen by physician on Oct. 20, and was then sent to the hospital.

Results of Examination.—The patient was pale and undernourished. The temperature was 38.3 C (100.9 F). There was o exanthema or jaundice. The fauces were slightly reddened, ut there was no exudate. Ophthalmoscopy showed nothing abnormal. There were no signs of chorioretinitis. In auscultation of the lungs, a few dry rales, which disappeared when the patient coughed, could be heard inferiorly on both posterior suraces. There was slight diffuse tenderness in the abdomen but no enlargement of liver or spleen. There was doubtful rigidity of he back, but not of the neck. Reflexes were normal. In the neck, in both axillas, and in the groins a number of painless, discrete, firm lymph nodes a little larger than hazelnuts could be felt.

Roentgenologic examination of the chest on Oct. 23 revealed rregular infiltration and slight pleural density at the base of the right lung. The right hilus was considerably enlarged. In the left hilus there was a small calcification. On Oct. 31 only a slight pleural density remained. Roentgenologic examination of the skull showed no intracerebral calcifications.

Laboratory Findings: The hemoglobin value was 98% on Oct. 25 and 100% on Nov. 11. The erythrocyte count on Nov. 11 was 4,730,000 and the color index was 0.99. The sedimentation rate was 12 mm. per hour Oct. 28 and 3 mm. per hour Nov. 15 (Westergren method). Leukocyte counts were 16,200 on Oct. 23; 5,600 on Nov. 11; and 9,400 on Nov. 18. Differential counts on Oct 23, Nov. 11, and Nov. 18 were as follows: unsegmented, 23%, 20%, and 8%, respectively; neutrophil leukocytes, 32%, 18%, and 28%; eosinophils, 6%, 5%, and 11%; large lymphocytes, 20%, 12%, and 15%; small lymphocytes, 16%, 38%, and 35%; monocytes, 3%, 7%, and 3%. On Oct. 23 the large lymphocytes were atypical, closely resembling those seen in mononucleosis.

The spinal fluid was clear, the protein content was normal, and there were 3 leukocytes per cubic millimeter; and no erythrocytes. There was no albumin in the urine. The Wassermann reaction was negative. Paul-Bunnell tests on Nov. 15 and Jan. 30 were negative. The antistreptolysin titer was normal on Nov. 15. Cold agglutinin tests on Oct. 28 and Nov. 6 were negative. Agglutination-lysis test for leptospirosis and Widal's reaction were negative. There were faint reactions with Salmonella Senftenberg-Simsbury H-antigen, 1:10, and with Bacillus dysenteriae Flexner type 1a, 1:25 (50); but no diagnostic importance can be attributed to these reactions. Examination of stools showed no pathogenic intestinal bacteria. Moro's and Mantoux's tests were negative.

Tests for Toxoplasmosis: Dye test titers on Oct. 28, Nov. 15, and Jan. 30 were 1:5,000; 1:6,250; and 1:2,500, respectively. Complement-fixation titers on Oct. 28, Nov. 14, and Jan. 30 were 1:128, 1:128, and 1:64, respectively.

Course.—The temperature remained elevated for three days, with a maximum reading of 39 C (102.2 F), and then returned to normal. The cough abated in eight days, and the stools became normal. The patient became ambulatory on Nov. 2 and was discharged on Nov. 21 for a stay in the country. On discharge she complained of great fatigue.

At follow-up examination on Jan. 30 it was learned that the patient had been attending school for about one month and felt less fatigued. The polyadenitis persisted, but the lymph nodes were now only a little larger than peas.

Environment.—The patient was living in Copenhagen. The family kept no domestic animals, and the flat was not infested with mice or rats. She had spent her summer vacation on a farm in the month of July and could not recall any insect stings.

Examination of her parents and of a 4-year-old brother and a 7-year-old sister showed nothing abnormal. There was no enlargement of lymph nodes, and the serologic tests for toxoplasmosis were negative. However, in a 6-year-old brother (Case 5) the reactions were strongly positive.

CASE 5.—*Clinical History*.—J. P., a boy aged 6 years, brother of patient R. P. (Case 4) had had no fever, catarrh, headache, disturbances of vision, exanthema, diarrhea, stitch in the left side, or pains in the joints during the previous year. His general health had been good. No insects' stings had been noticed.

Results of Examination.—In addition to serous coryza, the physical examination on Nov. 16, 1950, showed glands the size of hazelnuts at the angle of the jaw and smooth, painless lymph nodes a little larger than peas in the axillas and groins. (At follow-up examination on Jan. 30 the lymph nodes were reduced to pea-size.) Roentgenologic examination of the skull revealed no intracranial calcifications. Roentgenologic examination of the chest showed nothing abnormal. Ophthalmoscopy disclosed no signs of chorioretinitis.

There were no changes in the skin or jaundice, no enlargement of liver or spleen, and no neurological signs.

Laboratory Findings: The sedimentation rate was 3 mm. per hour (Westergren method). The leukocyte count was 11,900. The differential count was unsegmented, 3%; segmented, 48%; eosinophils, 4%; large lymphocytes, 14%; small lymphocytes, 24%; monocytes, 4%. The urine contained no albumin. The Wassermann reaction was negative. Paul-Bunnell tests on Nov. 18 and Jan. 30 were negative. Moro's test was negative, and the antistreptolysin titer was normal.

Tests for Toxoplasmosis: Dye test titers on Nov. 14 and Jan. 30 were 1:2,500 and 1:1,250, respectively. Complement-fixation titers on Nov. 14 and Jan. 30 were 1:128 and 1:128.

CASE 6.—*Clinical History*.—T. H., a boy aged 9 years, had been in good health previous to early October, 1950, when he began to complain of increasing fatigue. He would not play as usual, lost his appetite, and had a stitch below the left costal margin. On Oct. 25 his mother noticed a marked enlargement of the nodes on either side of the neck and thought that he had mumps. She later noticed enlarged nodes in the groins also. The temperature, which was not taken until Nov. 4, was elevated during the next fortnight, fluctuating between 37.3 and 39.6 C (99.1 and 103.3 F). The patient lost weight, but there were no rigors, headache, giddiness, nausea, disturbances of vision, catarrh, diarrhea, or pains in the joints. On admission to the hospital Nov. 18 he complained of fatigue and slight pain on swallowing.

Results of Examination.—The patient was tired, pale, and undernourished. The temperature was 37.9 C (100.2 F). The left submandibular gland was the size of a pea, and there were painless, discrete, firm, pea-sized lymph nodes in the neck (particularly on the left side), in both axillas, and in the groins. There were no changes in the skin or jaundice; no reddening of the fauces; no enlargement of liver or spleen; no neurological signs. As the temperature was normal the day after admission the patient was discharged. During the next month he still complained of fatigue; but his appetite was good, and he attended school. At follow-up examination on Jan. 4 the lymph nodes were still pea-sized.

Roentgenologic examination of the skull showed no intracerebral calcifications. Roentgen examination of the chest on Nov. 20 revealed slightly enlarged hilus shadows. It was also thought that the contours of enlarged lymph nodes could be distinguished. On Feb. 6 the chest was normal. Ophthalmoscopy showed no signs of chorioretinitis.

Laboratory Findings: The hemoglobin value was 90%. The erythrocyte count was 5,490,000. The color index was 0.78. The sedimentation rates on Nov. 20 and Feb. 6 were 102 and 6 mm. per hour (Westergren method). The leukocyte count on Nov. 20 was 4,800. The differential count was unsegmented, 7%; segmented, 53%; large lymphocytes, 9%; small lymphocytes, 30%; monocytes, 1%.

The urine contained no albumin. The Wassermann reaction was negative. Paul-Bunnell tests on Nov. 23 and 30 were negative, and Widal's reaction was negative. The antistreptolysin titers on Nov. 20, Nov. 30, and Jan. 4 were 1:700, 1:360 and 1:90. Moro's test was negative.

Tests for Toxoplasmosis: Dye-test titers on Nov. 21, Nov. 30, and Jan. 4 were 1:6,250; 1:6,250; and 1:1,250. Complement fixation titers on Nov. 30 and Jan. 4 were both 1:64.

Environment.—The patient was living in Copenhagen, and the flat was not infested with mice or rats. The family kept a cat, which had not displayed any signs of disease. Tests for toxoplasmosis in the cat on Nov. 30 were negative.

The patient had been away on vacation from July 2 to Aug. 12 and during that time had been in contact with animals, including a cat and a dog. He stated that he had been stung by gnats there.

Physical examination of his mother and three sisters and brothers (8, 7, and 4 years old) showed nothing abnormal. There was no enlargement of lymph nodes, and the serologic reactions were negative.

CASE 7.—*Clinical History.*—G. H., an unmarried woman aged 20 years, previously in good health, noticed enlarged, painless nodes in her right armpit in mid-October, 1950. She did not seek medical advice until the end of November. Her physician found an enlarged gland the size of a hazelnut at the angle of the jaw on the left side and well-defined, painless lymph nodes a little larger than hazelnuts in the right axilla. A fortnight later there were enlarged nodes in the left axilla also. Except for marked fatigue and nausea, the patient had no complaints. There had been no headache, giddiness, disturbances of vision, rigors, tonsillitis, catarrh, pains in the joints, gastrointestinal or urinary symptoms, or loss of weight. Menstruation was regular, the last onset having been on Dec. 11, when expected.

Results of Examination.—On Dec. 20 physical examination showed a painless, well-defined gland the size of a hazelnut at the angle of the jaw on the left side and similar isolated glands in the axillas; there was no adenitis in the neck or groins. There were no other abnormalities, particularly no changes in the skin or jaundice. The breasts were normal. The respiratory system showed nothing abnormal. There was no enlargement of liver or spleen, and there were no neurological signs.

Ophthalmoscopy, an electrocardiogram and roentgenologic examination of the chest and skull revealed nothing abnormal. A nonpathological calcification was found in the pineal body.

When examined again on Jan. 15 the patient was still tired. She had not had to remain in bed, but had worked at the office, only periodically and with difficulty. There was enlargement of the submandibular nodes on either side and of the submental nodes. A lymph node the size of a hazelnut could now also b demonstrated in each groin. Apart from iron therapy she ha been given no treatment.

Laboratory Findings: On Dec. 18, Jan. 15, and Jan. 29 th hemoglobin values were 84%, 82% and 83%, respectively. Th erythrocyte counts on Dec. 20 and Jan. 29 were 3,540,000 a 3,830,000. The color indexes were 1.05 and 1.07. There wa 237,000 platelets on Dec. 20 and 178,000 on Jan. 29. The sed mentation rate (Westergren method) was 9 mm. per hour o Dec. 18 and 4 mm. on Jan. 15. The leukocyte counts on D 11, Dec. 20, Jan. 15, and Jan. 29 were 3,960; 6,240; 5,040; a 5,720, respectively. The differential counts on these dates we as follows: neutrophil leukocytes, 55%, 67%, 72%, and 70 eosinophils, 1%, 0%, 0%, and 3.33%; lymphocytes, 42%, 29 26.33%, and 26%; monocytes, 2%, 4%, 1.66%, and 0.66

The urine contained no albumin. The Wassermann reacti was negative. Paul-Bunnell reactions on Dec. 18 and Jan. were negative. The antistreptolysin titer on Dec. 20 was norm

Tests for Toxoplasmosis: Dye test titers were 1:1,250 Dec. 11; 1:1,250 on Dec. 20; 1:6,250 on Jan. 15; and 1:1,2 on Jan. 29. Complement-fixation titers were 1:32 on Dec. 1:64 on Dec. 20; 1:128 on Jan. 15 and 29.

Environment.—Examination of the patient's mother show negative reactions for toxoplasmosis; there were no other me bers of the family. There were no domestic animals in the hou and rats or mice had not been observed. There were, howev numerous gnats. She had no contact with animals where s worked. During a vacation in the country the last two wee of July she had had no contact with animals and had not notic insects' stings.

COMMENT

The principal clinical finding in seven patients wi strongly positive serologic reactions for toxoplasmo was generalized lymphadenopathy, which had not be noticed by patient. The enlarged, painless lymph nod were firm and discrete and were found in the neck, groi axillas, and in two cases in the suboccipital region a the hilus of the lungs as well. One patient complained a pain in the left hypochrondrium, but there was no e largement of the spleen.

In three patients, the adenitis was the sole finding a was only revealed on examination Of the other patien one complained of marked lassitude with no obvio cause; the remaining three cases showed some elevati of temperature and nonspecific catarrhal symptoms. one patient this was accompanied by infiltration of t right lung and persistent mucous diarrhea. It cannot decided at present whether these more acute sympto are manifestations of the disease itself or are due to secondary infection. One patient had a positive antistre tolysin reaction and an elevated sedimentation ra whereas in the others both the sedimentation rates a the total leukocyte counts were normal. Two patie showed eosinophilia and relative lymphocytosis, and three patients the lymphocyte count was at the upp limit of normal. The lymphocytes were atypical, with increased basophilia of the cytoplasm.

In considering the differential diagnosis, it is importa that there was no exanthema and that the Wasserma and Paul-Bunnell reactions were negative. It is co sidered not improbable that in some diseases diagnos clinically as infectious mononucleosis, in which the Pau Bunnell reaction is found to be negative, tests woul show a positive serologic reaction for toxoplasmosis.

Although in congenital toxoplasmosis lesions in th eyes and central nervous system dominate the clinica picture, no abnormality of these organs was found. Th enlargement of the lymph nodes persisted for severa months, and in three cases the convalescence was accompanied by pronounced tiredness. All patients, however, made a complete recovery.

Unexplained fever or marked lassitude in pregnancy would seem, therefore, to indicate a thorough search for enlargement of lymph nodes. It should be noted, however, that experience with natural and experimental toxoplasmic infections in animals shows that there is good reason to expect that the acquired disease may occur in more than one form and may not even become manifest clinically.

An attempt was made to demonstrate Toxoplasma in a lymph node removed at biopsy. Microscopic examination nd animal inoculation gave negative results. Although ositive findings by these methods are needed to make e final diagnosis, it is felt that the results of the serologic sts make the diagnosis probable. The titers found in ese cases were of a level hitherto found only in conrmed congenital toxoplasmosis. Moreover, it was posible to demonstrate that the progression of the disease as accompanied by rising titers which fell during conalescence. The association of lymphadenopathy and ositive serologic reaction in the same clinical picture ems justified by the fact that in the familial outbreaks e remaining members of the family with no lymph node nlargement showed negative serologic reactions.

The epidemiology of toxoplasmosis is not clear. Reently, with Christiansen,[5] I have shown that the protozoa isolated from wild hares dying from toxoplasmosis are serologically and in pathogenicity apparently identical with the human Toxoplasma strain R. H. In Copenhagen a surprisingly large number of dogs have been found to have positive serologic reactions.[4] Since the viscera of hares and the urine of experimentally infected dogs are found to contain Toxoplasma, the possibility of transmission from these sources should be taken into account. The natural route of infection is unknown, but the possibility of infection via the alimentary or upper respiratory tracts, as well as via the bites of blood-sucking insects, should be considered.

SUMMARY

Seven cases of enlargement of the lymph nodes with positive serologic reactions for toxoplasmosis are described. Six cases were in children and one in an adult. Five cases occurred in two familial outbreaks. No signs of involvement of the eyes or of the central nervous system were found, and all the patients recovered completely. Evidence for regarding these as cases of acquired toxoplasmosis and the epidemiology of toxoplasmosis are discussed.

Amager Boulevard 80.

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[5] Christiansen, M., and Siim, J. Chr.: Toxoplasmosis in Hares (Lepus Europaeus) in Denmark, read before the 5th International Congress for Microbiology, Rio de Janeiro, Brazil, August, 1950. Christiansen, M., and Siim, J. Chr.: Toxoplasmosis in Hares in Denmark: The Serological Identity of Human and Hare Strains of Toxoplasma, Lancet 1: 1201-1203, 1951.

SOME USEFUL NEUROLOGICAL TESTS

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The following simple clinical tests, easy to perform nd to interpret, and requiring but little time, deserve vider use. For everyday neurological examination in the ffice, they have proved highly valuable. Single eponyms, requently used in neurological textbooks often are not nd cannot be historically correct. They are meaningless o the student and tax his memory without commensurate enefit. For this reason, no eponyms will designate any of hese tests. They will be given physiological names.

LID VIBRATION TEST

Many years of experience have proved the following test to be the most dependable and sensitive for the detection of a facial palsy, central or peripheral. Here the palpable vibration of the orbicularis oculi on contraction is tested. The patient closes his eyes, and with his thumb the examiner lifts the upper lid against resistance. In a normal person the examiner feels the vibration of the upper lid which is rapidly successive, vigorous, and extensive. This is because every voluntary contraction of the muscle is practically a tetanus. In facial paralysis, both central and particularly peripheral, this palpable vibration is diminished; it is less vigorous, less frequent, and less extensive. This diminished palpable vibration of the upper lid presages an imminent facial paralysis long before other clinical signs become evident, and for years may remain the only residual after complete clinical recovery from facial palsy.

WINKING-JAW TEST

When this test is positive, the mandible moves to one side as the cornea on the other side is touched. This is a movement of the external pterygoid muscle, associated with a contraction of the orbicularis oculi muscle which is incident to the touching of the cornea. Using a glass applicator, the examiner touches one cornea with some force. A strong reflex closing of the patient's eye should be achieved. Simultaneously with the closure of the eye, the mandible moves quickly to the opposite side. The same movement may occur when the patient actively closes one eye briskly and forcefully. This associated movement of the mandible indicates a lesion of the corticotrigeminal pathways on the side of the touched cornea. It does not occur in the normal subject. The value of such a positive test lies in the fact that there is no, or no better, indication of a supranuclear lesion of the trigeminal nerve.

HEAD RETRACTION REFLEX

This is a reflex of the muscles which retract the head, i. e., which bend it backward. It is elicited as follows: The patient is made to relax, with his head bent slightly forward and the examiner taps the middle of the upper lip with the reflex hammer in such a way as to bring about

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a further flexion of the head, with further stretching of the retractors. If this reflex is positive, the patient responds to the hammer-blow by brisk, short retraction of his head. This occurs in bilateral lesions of the pyramidal tract above the cervical cord. It has been seen in diffuse brain lesions such as cerebral arteriosclerosis, hypertensive encephalopathy, cerebral syphilis, and in advanced cases of amyotrophic lateral sclerosis, lateral sclerosis, and dorsolateral sclerosis. In the normal subject, the reflex is negative; only slight oscillation of the head occurs, and there is no retraction.

HEAD BENDING TEST

The examiner bends the head of the sitting patient forcibly forward. Physiologically this means considerable elongation of the spinal cord, the meninges, and roots. This is the basis of the famous Brudzinski neck sign. If this elongation is carried out on the lower end of the cerebrospinal axis by raising the outstretched leg of the patient, it forms the physiological basis of the signs of Lasègue and of Kernig. In the normal subject the mobility of the spinal cord, meninges, and roots is such that the patient has no discomfort on head bending. If there is any affection of the meninges, or of the roots, on head bending the patient has pain or paresthesias exactly in the affected area. This is most dramatically seen in compression or stretching of a root by a tumor or intervertebral disc, but is seen also in diffuse affections of the roots, i. e., polyradiculoneuritis. Patients describe the sensation as "electric shock" or "tingling." This reaction of the patient constitutes a valuable diagnostic aid. In the so-called Guillain-Barré syndrome these painful sensations are mostly localized in the legs and in the heels, sometimes even in the fingers. In multiple sclerosis and dorsolateral sclerosis the sensations are felt in the upper back. In multiple sclerosis this may be one of the earlier signs. Even if the test is negative, i. e., when the patient does not complain when his head is passively bent, the sign has significant diagnostic value, since it means that the spinal meninges and roots are free, or at least not grossly encroached upon. The general usefulness of this simple test is incontestable.

ARM DEVIATION TEST

The patient, with arms outstretched horizontally before him, stands in front of the examiner. The examiner stretches out his arms and supports the fingertips of the patient with his own fingertips. The patient closes his eyes. The examiner removes his support allowing his arms to remain in the horizontal position. He ascertains whether one or both of the patient's arms deviate, and in which direction. He measures the degree of deviation from the position of his own arms.

In the normal subject the arm deviates not at all, or very slightly outward and upward. In pyramidal lesions the arm deviates downward. In cerebellar lesions the arm deviates strongly outward and upward. It may deviate outward and downward, but it is the deviation outward which must be regarded as typical. In extrapyramidal lesions (as in paralysis agitans, or Parkinson's disease) the arm deviates downward and inward. In parietal lobe lesions the arm deviates slightly downward while the fingers perform spontaneous, involuntary athetoid movements.

HEAD DROPPING TEST

This test is valuable for the diagnosis of early paralysis agitans. Rigidity, typical for this disease, usually starts in the muscles of the neck. The test serves to detect such rigidity, even of the slightest degree. The patient lies supine on a padded surface without a pillow. The examiner slips his left hand under the patient's head while it rests on the table. With his right hand, he lifts the patient's head suddenly, briskly, unexpectedly, and allows it to drop so that it falls back on his left palm.

In the normal subject when the patient is fully relaxed, the head drops heavily like dead weight. In paralysis agitans the head drops slowly, gently, hesitantly, due to the rigidity of the neck muscles. In far-advanced cases, when asked to lie supine on the table, the paralysis agitans patient keeps his head elevated so that his occiput never comes in contact with the surface, and this position is maintained indefinitely—"frozen head dropping test." The test is so sensitive that it can be said when the head dropping test is normal, paralysis agitans of any variety can be excluded.

SHOULDER SHAKING TEST

Extrapyramidal rigidity documents itself very early in the diminution of pendulousness of the arms in walking. When this diminution is unilateral it becomes a valuable sign of incipient paralysis agitans. This diminution is plainly seen when the patient walks, but can be demonstrated even with greater clarity by the following test. The examiner stands facing the patient and places his hands on the patient's shoulders. He shakes the shoulders in a brisk and alternating rotatory movement, to and fro, and with varying speed and force. This produces arm swinging the intensity of which can be controlled by the examiner. In paralysis agitans the muscle rigidity reduces the excursion of the swinging arm, either bilaterally or unilaterally. The difference between the two sides may be striking. Even if slight, the difference in the range of movement can, to some degree, be appraised quantitatively.

This test is valuable in another way. Not only extrapyramidal rigidity produces diminished pendulousness of an arm in walking, but a homolateral cerebellar affection may do the same. In this case, though there is no hypertonia as in extrapyramidal disease, but cerebellar hypotonia instead, still the affected arm swings less. The pathophysiology is not the same in the two conditions. Extrapyramidal affections diminish pendulousness through rigidity of the affected muscles. Cerebellar affections produce diminution of pendulousness through "decompensation of movement." Here the arm, though hypotonic, does not move synchronously with the contralateral leg in walking, due to cerebellar dyssynergia, i. e., the lack of synergic movements of different parts of the body. If a patient shows diminution of the pendulousness of one arm in walking, the question arises as to whether this is extrapyramidal or cerebellar in origin. The shoulder shaking test will decide the issue. If, on shoulder shaking, the affected arm moves less, the affection is extrapyramidal; if it moves more, cerebellar.

PUSH TEST

The patient stands with his feet apart, bearing his veight evenly on both legs. The examiner, his hand on he patient's sternum, pushes him gently backward. The ormal person, to prevent falling backward, innervates he dorsiflexors of his feet and toes and lifts the toes lightly from the floor, shifting his weight to his heels. atients with paralysis agitans do not do this. The whole oot remains flat on the floor. This is particularly striking n unilateral paralysis agitans. When the patient is pushed ackward, on the healthy side there is a normal visible ontraction of the dorsiflexors of the toes and foot and light lifting of the toes. The affected side remains static.

PENDULOUSNESS OF THE LEGS TEST

This simple and reliable test serves quickly to appraise he muscle tonus of the lower extremities. The patient sits n the examining table, his legs hanging freely over the dge. He is made to relax. The examiner lifts the patient's egs and allows them to drop, observing the length of ime and the manner in which they swing. This test gives aluable information in diseases of the pyramidal, cereellar, and peripheral nervous systems. But the test is ost helpful in the diagnosis of extrapyramidal rigidity, s in paralysis agitans. This rigidity very markedly hortens the swinging time. In unilateral paralysis agitans he difference in the swinging time between the affected nd the healthy side is obvious.

ASSOCIATED MOVEMENTS TEST

A pyramidal lesion is characterized by the tendency of he patient to perform mass movements instead of single, ine movements. Such a test is valuable for differential iagnosis between spastic and flaccid paralysis of the xtremities. Two examples may be cited. In spastic paralsis of the dorsiflexors of the hand and fingers, the patient s unable to dorsiflex his wrist on command. But when e is asked to grasp an object with his affected hand, he imultaneously dorsiflexes his wrist in the form of an ssociated movement. In peripheral paralysis of these uscles, as in paralysis of the radial nerve, the patient oes not perform this dorsiflexion of his wrist in grasping. On the contrary, in squeezing the object with his fingers, he volarflexes his hand still more. In spastic paralysis of the dorsiflexors of the foot, the patient, unable to dorsiflex his foot on command, performs this very movement automatically when the flexor withdrawal reflex (homolateral mass flexion reflex) is elicited, i. e., when his toes are forcibly flexed plantarward. In peripheral palsy of the dorsiflexors of the foot, this passive flexion of the toes has no effect on the dorsiflexors of the foot.

ASSOCIATED MOVEMENT OF THUMB

The basis of this sign is the general tendency of a patient with a pyramidal lesion to perform mass movements instead of single, fine movements. With his left hand, the examiner tightly grasps the patient's wrist on the affected side. With his other hand the examiner hooks his four fingers into the four bent fingers of the patient. The patient is asked to bend his four fingers further against those of the examiner, and to exert all his strength in a pulling motion. If there is the slightest spastic paralysis of the hand, the patient's thumb is adducted, flexed, and is moved in toward his palm. This is a very early pyramidal sign. In the normal subject, the thumb remains immobile, or its end phalanx bends slightly. It is particularly the marked difference in the behavior of the thumb on the two sides that renders this test valuable.

DISSOCIATION BETWEEN ABDOMINAL SKIN AND ABDOMINAL MUSCLE REFLEXES

Every neurological textbook speaks of "abdominal reflexes." These reflexes are so important and diagnostically popular that the term "abdominal" is often used alone when referring to the reflexes. However, the term "abdominal reflexes" is incorrect and misleading. A strict distinction must be made between the abdominal skin and the abdominal muscle reflexes. The first is a superficial, a "skin" reflex. Without being touched, the muscle contracts on stimulation of the skin. The second is a deep or muscle stretch reflex. Here the muscle contracts when stretched. The abdominal muscles have both types of reflex, and these types must be strictly differentiated. It is highly confusing to use the term "abdominal reflexes" and by it to designate only the superficial (skin) reflexes. In a pyramidal lesion, for instance, the behavior of each type of reflex is quite different: If the lesion is bilateral and affects the pyramidal tracts above the sixth thoracic segments, we have dissociation of abdominal skin and abdominal muscle reflexes—the abdominal skin reflexes are lost, and the abdominal muscle reflexes exaggerated. There is no more reliable sign of a bilateral pyramidal lesion above the sixth thoracic segment than this dissociation. It is even superior to the Babinski reflex.

MEDIAN NERVE TEST

To determine a defect in the function of the median nerve, we usually examine for the opposition of the thumb. However, it is better to examine for the abduction of the thumb which is a pure median function, and is more easily appraised quantitatively. With the patient's fingers extended, palmar surfaces facing each other, the finger tips make contact so as to form a sort of steep roof. The thumbs are then abducted, their inner surfaces kept at right angles to the palms, their tips kept in apposition. A triangle is formed, with the thumbs as the base, and the index fingers as the sides. In a median palsy the thumb on the affected side cannot be abducted as far downward as the one on the normal side. The base of the triangle, therefore, is broken, the thumb on the affected side being higher than that on the normal. The more severe the median nerve palsy, the higher the tip of the affected thumb stops above that of the healthy thumb. As recovery proceeds, the patient is able to abduct the affected thumb more and more, until its tip approximates that of the normal thumb. This is not only a quantitative, but a qualitative test as well.

TENDON PALPATION TEST

A tendon is palpated with the thumb to estimate its resistance to pressure. In affections of the cerebellum and peripheral nervous system the tendon is soft and offers less resistance; it is more easily compressed than in the normal subject. This is particularly true of the Achilles tendon. The patient stands on the examining table with his back to the examiner. Care should be taken that his weight is distributed evenly on both feet. The examiner grasps the patient's ankles, his thumb touching the Achilles tendon. The tendon is compressed on both sides simultaneously, and the resistance judged. In sciatic neuritis of any origin the Achilles tendon is softer and offers less resistance than the normal tendon. In the manifold affections of the sciatic nerve or its roots, for instance in the presence of a protruded intervertebral disk or in infectious sciatic neuritis, the softness of the Achilles tendon is striking. The softness of this tendon may be of decisive importance for differential diagnosis between a neurogenic and a non-neurogenic affection.

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BRACHIAL PLEXUS BLOCK ANESTHESIA IN CHILDREN

George A. Small, M.D., Brookline, Mass.

Since 1897 there have been many works published on anesthesia of the upper extremity by injection of the brachial plexus. The general consensus is in accord with Labat's observation that "the brachial plexus block is the method of choice for all major operations on the upper extremity."[1] However, the commendation accorded this method of anesthesia has not elevated it to the position that it merits in the armamentarium of the pediatric anesthesiologist. The literature has commonly indicated that children are poor subjects for local anesthesia because of the difficulty in obtaining their cooperation and because they may sustain serious psychic trauma during the procedure.[2] That this is not a universal attitude is manifested by a number of articles which suggest that children are suitable subjects for brachial plexus block.[3]

The following is a report of the program pursued in the management of 151 brachial plexus block anesthesias performed on 150 children.

SPECIAL CONSIDERATIONS

The actual block of the brachial plexus in a child is but a small part of this procedure. Attention to the several psychological, pharmacologic, and anatomic considerations involved are most important to the success of the method. The salient features of these considerations will be discussed.

Every child requiring surgery because of illness or accident suffers not only from physical trauma attendant upon the injury or disease, but also from the severe psychic trauma related to hospitalization and its associated awesome sights, sounds, and smells, dislocation from the family, and disruption of the familar daily routine. Such a child is disturbed by fears, anxieties, and apprehensions. Some children contain their natural fears admirably and may reveal nothing more than a slight elevation of the pulse rate. The majority, however, are too young to exert such praiseworthy emotional control, and exhibit evidence of the stress they suffer, some by an inordinate amount of vigilance and curiosity, many by crying continuously for a parent, a number by whimpering at every approach, and a few by complete negativism. To expect cooperation and rational behavior from children as a requisite to a successful brachial block is a mistake. Many children can cooperate fully; a number of children in this series required no more than a simple explanation of the proposed procedure after which the block was accomplished without opposition. Nevertheless, it is prudent to assume at the outset that every child is going to object actively to all advances, and one must be prepared to manipulate circumstances as the indications arise.

Another important consideration is the selection of the premedication: choice of drugs, dosage, and the route of administration. The aim is quickly but safely to provide a short period of hypnosis and amnesia, without notable respiratory depression. Attainment of this goal 100% of the time is not easily achieved; frequently it is accomplished; more often it is closely approximated with very satisfactory results. In this study morphine, meperidine (demerol®), atropine, scopolamine, and pentobarbital (nembutal®) sodium were administered in several combinations intravenously, intramuscularly, and subcutaneously; thiopental (pentothal®) sodium and pentobarbital sodium were given by rectal instillation. In this series experience with any one drug or combination of drugs has not been extensive enough to justify any positive conclusions or recommendations for a standard routine. However, some general conclusions have been drawn which may be helpful.

Though a child appears to be free of fear and apprehension it is wise to administer a barbiturate, such as pentobarbital sodium, for the specific protective property of the barbiturates against procaine hydrochloride (novocain®) reactions. Furthermore, the apparent stoicism of the child is usually the product of a strenuous voluntary effort, and the psychic sedation provided will

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The pentobarbital sodium used in the cases reported in this paper was supplied by the Abbott Laboratories, North Chicago, Ill.

1. Labat, G.: Regional Anesthesia: Its Technic and Clinical Application, Philadelphia, W. B. Saunders Company, 1922, p. 199.

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ise the inner tension appreciably.[4] When pentobarbital odium is administered alone for mild sedation the dose hould not be large enough to produce sleep, for then ere is a possibility that the patient may become uncontollably restless.

TABLE 1.—*Dosage of Premedicating Drugs, Mg.*

Age	Morphine Hydrochloride	Atropine Sulfate	Scopolamine Hydrobromide	Meperidine Hydrochloride	Pentobarbital Calcium
1-2	1.0	0.10	....	15	15
2-3	1.2	0.12	....	20	20
3-4	1.6	0.12	....	25	25
4-5	2.0	0.16	....	30	30
5-6	2.0	0.16	0.12	35	35
6-7	3.0	0.20	0.16	40	40
7-8	3.0	0.20	0.20	50	50
8-9	4.0	0.32	0.20	50	50
9-10	4.0	0.32	0.32	50	60
10-11	5.0	0.12	0.32	50	60
11-12	6.0	0.42	0.42	50	60

Scopolamine is probably best not used on children ider five because it tends to produce delirium and mania iring the recovery period, a result which can be most fficult for the nurses and alarming to the parents.[5]

Rectal thiopental produces a quiet sleep during which brachial plexus may be readily blocked; however, this ep will last only 30 min. to one hour, and with emernce the child may become unmanageable. When rectal iopental is used for premedication additional medicaon should be available for administration at the first gn that the child is awakening.

The combination of morphine, atropine, and pentorbital sodium or that of meperidine and pentobarbital dium administered intravenously enables one to atin the ideal in premedication of children for brachial exus anesthesia. Meperidine and a 5% solution of ntobarbital sodium form a precipitate if mixed in the me syringe but can be injected through one venipuncre from two syringes by completion of the injection of ie drug, disconnection of the syringe from the needle, id attachment of the second syringe, with care not to splace the needle from the vein. Any overt opposition the procedure on the part of the child is likely to be et at the time of the venipuncture; finesse in its perrmance and the use of sharp needles of finest gage will inimize the patient's objections.

Below is the dosage of the drugs (Table 1) that have oved useful in this study. The figures represent maxium single doses given, except in several instances in hich the children were unusually high strung. Factors hich influence the selection and the dosage of drugs re the age of the child, the size, general condition, and verity of trauma, and the degree of nervous irritability. is advisable to err on the side of insufficient medication itially, for such errors are easily corrected with additional doses, whereas overenthusiastic use of these potent rugs may expose the child to unnecessary danger of entral nervous system depression.

The anatomy of the brachial plexus is another matter or consideration. Because the brachial plexus block in he child is an anatomic procedure, a clear understanding f the relationships of the several structures involved is ecessary to the attainment of a reliable proficiency in the erformance of the block. The many good texts available and the laboratory dissection of the plexus are interesting aids to this understanding.

In the technic employed in this study the fact that it is possible to palpate the first rib below the supraclavicular fossa of a child so that it can be distinguished with certainty from all other structures was utilized to the utmost advantage in almost every case. This palpation is possible even though the child has a chubby layer of adipose tissue; the tissues of children are usually thin in this region and offer little resistance to deep palpation. A second helpful indication is the pulsation of the subclavian artery. Facility in locating these two guides is attained after some experience; the process of anesthetizing the brachial plexus in a child then becomes easier than in an adult.

ANESTHETIC SOLUTION

The anesthetic solution used in this series was prepared as follows: to 42.5 cc. of sterile saline solution was added one 5-cc. ampoule of 20% procaine hydrochloride solution (1.0 gm.), one 2-cc. ampoule of 1% tetracaine (pontocaine®) hydrochloride solution (20 mg.), and 0.5 cc. of 1:1,000 epinephrine (adrenalin®) hydrochloride solution. The resulting solution then consisted of 50 cc. of 2% procaine hydrochloride and 0.04% tetracaine with 1:100,000 epinephrine.

The total amount of solution injected varied with the age and size of the subject, and is given in Table 2.

TECHNIC

A short observation period during which one endeavors to appraise the child, and to develop a friendly relationship is the first step in a brachial plexus anesthesia. The assistance of a nurse to do some mothering is of inestimable value at this time. Surgical equipment, particularly hypodermic needles, are fear-inspiring implements, and are best kept out of sight until time for their use. It is during this period that the premedication is selected and administered.

One hundred and twenty-four blocks were performed by the supraclavicular route, essentially after the method described by Kulenkampff.[6] The remaining 27 blocks were induced by a modification of the axillary approach described by Accardo and Adriani.[3d] The popular supraclavicular method is discussed here; the subaxillary modification of the Accardo and Adriani axillary technic will be described in a future paper.

TABLE 2.—*Total Anesthetic Solution*

Age of Patient, Year	Amount of Solution
1-3	7-12 cc.
4-6	10-15 cc.
7-9	15-20 cc.
10-12	15-25 cc.

In performing the supraclavicular block the head is maintained in the midline and turned about 45 degrees to the opposite side. The shoulder of the side to be blocked should be depressed caudally as much as pos-weight is distributed evenly on both feet. The examiner grasps the patient's ankles, his thumb touching the Achilles tendon. The tendon is compressed on both sides simultaneously, and the resistance judged. In sciatic neuritis of any origin the Achilles tendon is softer and offers less resistance than the normal tendon. In the manifold affections of the sciatic nerve or its roots, for instance in the presence of a protruded intervertebral di or in infectious sciatic neuritis, the softness of the Achill tendon is striking. The softness of this tendon may be decisive importance for differential diagnosis between neurogenic and a non-neurogenic affection.

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[4] (*a*) Lundy, Tuohy, Adams and Mousel.[3f] (*b*) Migliarese, J. F.: Bauer, E. C., and Randall, L. O.: Prevention of Procaine Convulsions by Presidon and Sodium Pentobarbital, Proc. Soc. Exper. Biol. & Med. 73: 53-55 (Jan.) 1950.

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[6] Kulenkampff, D.: Die Anästhesierung des Plexus brachialis, Deutsche med. Wchnschr. 38: 1878-1880, 1912.

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tions remained adequate for good oxygenation with supplemental oxygen supplied by a catheter inserted into an oropharyngeal airway, and the surgical procedure went forward without further delay. Both children made uneventful recoveries.

The shortest anesthesia obtained was about 50 min. and the longest noted by personal observation was three hours and 45 min. The average duration was approximately two and one-half hours. In one case the operative procedure required five hours; the brachial plexus block began to wear off at two and one-half hours after the start of the surgery; the block was reenforced with a 10 cc. injection of anesthetic solution and remained completely effective until after the operation was terminated. In all other cases a single block outlasted the necessary surgical procedure.

COMPLICATIONS

Because many of this group were treated as outpatients and a number were discharged a day or two after admission, it has been impossible for the clinician administering the anesthetic to these children to make all the necessary postoperative observations. However, the cooperation of the surgical and nursing staffs has been invaluable in this regard. A compilation of all reports and observations from all sources indicated that complications have been notably few and insignificant.

Reported complications of brachial plexus block include hematoma, pneumothorax, toxic reactions from the anesthetic solution, temporary paralysis of the diaphragm, temporary hoarseness, mediastinal emphysema, permanent neural damage, death from intravascular injection, and unexplained death.[7]

Reactions from the anesthetic solution, hematoma and pneumothorax are the most common of the important complications and may be reduced by the precautions of giving a preoperative barbiturate, using fine-gage needles, and attending carefully to the details of performing the block.

Complications encountered in this study consisted of four small hematomas which were asymptomatic and subsided rapidly; there were three instances of Horner's syndrome which subsided with the anesthesia; in one child a rectal temperature of 102 F. developed, accompanied with a four-hour period of hyperpnea postoperatively. This was thought to be due to some atelectasis from respiratory depression resulting from overzealous premedication; recovery was uneventful; a chest x-ray next day was normal.

An increase in heart rate was observed in each case; this occurred irrespective of the inclusion of atropine or scopolamine in the premedication and was attributed to the epinephrine content of the anesthetic solution.

COMMENT

The brachial plexus block is a very satisfactory anesthesia for surgery of the upper extremity in children. It provides excellent relaxation and complete freedom from pain. At the same time it makes it possible to avoid the use of general anesthesia in circumstances in which general anesthesia is least desirable; e. g., in the outpatient department, after ingestion of food, in the presence of respiratory disease, when traumatic shock is present, and for long operations.[8]

It has been pointed out that blocking the brachial plexus has a beneficial effect on traumatic shock associated with severe injuries to the upper extremity; also, the sympathetic nerve block occurring concomitantly with the sensory and motor anesthesia may have a beneficial effect on the circulation of the damaged member.[8a]

The reader may have gained the impression that the preliminary management and the technic of procuring anesthesia by brachial plexus block is too time-consuming to be practical. Were this true it would constitute a valid objection to the method. However, from the moment the anesthesiologist meets the patient until he instructs the surgeon to proceed no more than 40 min., on the average, need be consumed. This is possibly a few minutes longer than it takes to prepare a child and to administer a general anesthetic to a depth commensurate with the proposed surgery.

SUMMARY

A series of brachial plexus block anesthesias in children between the ages of 15 mo. and 12 yr. is reported.

The importance of preoperative management is emphasized.

Experiences with the use of sedating drugs is evaluated.

A technic of brachial plexus block in children is presented.

The results have been very good in this group and the complications have been negligible.

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Medical Information in Lay Press.—We of the pharmaceutic industry are fully as unhappy as are most practicing physicians at premature announcements in unwarrantedly over-enthusiastic terms in the public press of so-called "wonder drugs." A free press is one of our precious institutions, and perhaps one of the prices to be paid therefor is the risk of such reports. Unfortunately, too frequently, medical information is interpreted by writers whose backgrounds in medicine are limited, understandably; limitations of space and of time often operate to their disadvantage in preparing material for publication; but it would seem that oversimplification and nonqualification might be minimized, and that enthusiasm might be temperate and controlled so that the lay reader might get a more accurate, less distorted picture. Health education activities, even to include dissemination of public health and medical information, are worthwhile: an informed public is a sound objective; and everyone is interested in his own personal health problems and desires information related thereto. But it is not sound to attempt to inform a public inadequately prepared therefor, with advanced medical information. "If 'a little knowledge is a dangerous thing' . . . a little less is a little more" is undoubtedly true; but insofar as medicine is concerned, a little more discretion in presentation of information through the daily press and through monthly and weekly periodicals . . . would do much toward creating less unhappiness and less dissatisfaction among larger numbers of lay and professional segments of our population.—J. P. Gray, M.D., Present Status of Antibiotics and The Future in This Field, *Rhode Island Medical Journal*, September, 1951.

CLINICAL NOTES

VITAMIN K_1 EMULSIONS IN BISHYDROXYCOUMARIN EMERGENCIES

RESULTS OF INTRAVENOUS ADMINISTRATION

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and
Fredrick J. Stare, M.D., Boston

Recently an editorial in THE JOURNAL called attention to the dangers of anticoagulant therapy.[1] Although use of protamine sulfate intravenously has minimized the danger of hemorrhage due to heparinization, there exists no comparable rapid treatment for the hypocoagulable state induced by bishydroxycoumarin (dicumarol®). Accordingly, the severe hemorrhages which have complicated anticoagulant therapy have occurred principally in patients receiving bishydroxycoumarin.

Various forms of vitamin K have been used to reverse bishydroxycoumarin-induced hypoprothrombinemia. The relative ineffectiveness of most of these preparations is indicated by the fact that responses to them (in terms of prothrombin time or per cent of normal activity) are usually reported at 24-hour intervals.

It is acknowledged that it is not necessarily desirable to reverse completely the excessively prolonged prothrombin times which may inadvertently follow use of bishydroxycoumarin. Yet when such hypocoagulability is associated with hemorrhage, there can be no question about the necessity for rapidly reversing the prothrombin time. Moreover, a number of situations can arise which demand a rapid termination of the bishydroxycoumarin effect. One such situation is the appearance of an acute surgical problem in a patient who has been receiving the drug.

The use of a potent, rapidly acting vitamin K preparation for the treatment of bishydroxycoumarin-induced hypoprothrombinemia in the dog has been reported.[2] This preparation is a 5% emulsion of vitamin K_1 for intravenous administration prepared in this laboratory as described previously.[2] In dogs, experimentally produced bishydroxycoumarin hypoprothrombinemia was completely reversed in less than three hours, with marked improvement noted in 30 to 60 minutes, by means of the vitamin K_1 emulsion. Use of the preparation in the treatment of bishydroxycoumarin-induced hypoprothrombinemia in man was followed by considerable improvement in prothrombin activity within 60 to 120 minutes, with a continuing but more gradual return toward normal values thereafter.[3]

The following case reports, including one control case in which a commonly used water-soluble vitamin K preparation was employed, are presented as examples of the value of intravenously administered emulsions of vitamin K_1 in the management of emergencies associated with the use of bishydroxycoumarin.

REPORT OF CASES

CASE 1.—A 73-year-old Negro physician was receiving bishydroxycoumarin for a myocardial infarction. In addition to a long history of coronary insufficiency, he was known to have had a resection of an adenocarcinoma of the sigmoid with an end-to-end anastomosis six years previously. On the fifth hospital day he began to complain of generalized abdominal tenderness and colicky pain most marked in the left midabdominal region. This was followed by intermittent vomiting. A surgical consultant made a diagnosis of partial intestinal obstruction. The patient's prothrombin activity at the time was 12%. In anticipation of the possible need for emergency surgery, the consultant urged that an attempt be made to raise the prothrombin to a safer level as quickly as possible. Accordingly, the patient was given 650 mg. of emulsified vitamin K_1 (10 mg. per kilogram of body weight) intravenously. One hour after administration of the drug, the prothrombin activity was 30%, a far safer level for surgery.

CASE 2.—A 30-year-old white man [4] with thrombophlebitis of the right leg was receiving bishydroxycoumarin. Toward the end of his hospital stay there arose an urgent personal matter necessitating his presence at home as soon as possible. At that time his prothrombin activity was 24%. He was given 950 mg. of emulsified vitamin K_1 intravenously. Two hours later his prothrombin activity was 42%; four hours later it was 54%; seven hours later it was 65%. He was allowed to go home the same day. Forty-eight hours later, when he returned for a follow-up prothrombin determination, his prothrombin activity was found to be 90%.

In contrast to the preceding two cases is the following one, which is representative of a bishydroxycoumarin emergency treated with a commonly used water-soluble vitamin K preparation.

CASE 3.—A 62-year-old woman was under treatment with bishydroxycoumarin following a coronary occlusion. On the 35th hospital day a medium-sized cyst was removed from her right breast. After the procedure there was a great deal of hemorrhagic oozing from the operative wound. It was then discovered that by an oversight she had been receiving bishydroxycoumarin for the preceding four days. Her prothrombin activity proved to be 12%. Seventy-five milligrams of a water-soluble vitamin K preparation was administered intravenously every two hours for the following eight hours. The next morning the prothrombin activity was 18%, and a day later it was 24%. The oozing was finally controlled by pressure dressings, and it stopped spontaneously after 24 hours.

SUMMARY

An emulsion of vitamin K_1 suitable for intravenous administration is found to be extremely effective in bringing about a prompt decrease in the hypocoagulability induced by bishydroxycoumarin. Its use in two representative bishydroxycoumarin emergencies is described, and results are compared with those in a third case, in which a commonly available water-soluble vitamin K preparation was used.

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Vitamin K_1 was supplied by Merck & Company, Inc., Rahway, N. J.

From the Department of Nutrition, Harvard School of Public Health, and the Medical Clinics, Peter Bent Brigham Hospital.

These studies were supported in part by funds from the Nutrition Foundation, Inc., New York; The Upjohn Company, Kalamazoo, Mich., and the National Cancer Institute of the National Institutes of Health, United States Public Health Service, Bethesda, Md.

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[4] From the surgical service of Dr. Donald V. Baker, Jr., Veterans Administration Hospital, West Roxbury, Boston. Mr. John S. Belko gave technical assistance.

ACNEFORM ERUPTION PRODUCED BY USE OF TETRAETHYLTHIURAMDISULFIDE

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Since it was discovered in 1948 that tetraethylthiuramdisulfide (antabuse®) sensitizes the organism to alcohol,[1] it has come to be used rather extensively in the treatment of alcoholism. During the clinical investigation of tetraethylthiuramdisulfide, the number of cases in which it has been used exceeds 5,000.[2] The explanation for the discomforting symptoms produced after ingestion of alcohol in a person who is taking tetraethylthiuramdisulfide appears to lie in the fact that the blood acetaldehyde level is increased in such persons.[3]

In the published literature two references have been found pertaining to skin eruptions during tetraethylthiuramdisulfide therapy. Gelbman and Epstein,[4] reporting on the treatment of 55 cases, commented that among this series skin rash developed in 3 cases. In each case the rash was easily eliminated by routine antihistaminic therapy—50 mg. of tripelennamine (pyribenzamine®) hydrochloride three times a day—for three or four days without discontinuing the use of tetraethylthiuramdisulfide. Lewis and Bremers [5] reported a patient in whom a fixed drug eruption developed whenever he took alcohol while being treated with tetraethylthiuramdisulfide. It was their opinion that the eruption was elicited by a product of the combination of the two drugs.

This report deals with a patient in whom an acneform eruption repeatedly developed coincident with the ingestion of tetraethylthiuramdisulfide. I feel reasonably certain that the patient did not take any alcohol at any time while taking tetraethylthiuramdisulfide. She was very fearful of the violent symptoms produced by ingestion of alcohol when tetraethylthiuramdisulfide was being taken. Once she had taken a teaspoonful of spirit of ammonia for "nervousness" while taking tetraethylthiuramdisulfide and had experienced such a severe reaction that she had been afraid she might die. Insofar as I can determine, a significant skin reaction to tetraethylthiuramdisulfide alone has not previously been observed. In a personal communication Dr. Richard C. Proctor,[6] who has had a fairly extensive experience with the drug, stated that to his knowledge an acneform eruption produced by use of tetraethylthiuramdisulfide has not previously been noted.

REPORT OF A CASE

A white woman, 41, was first seen on Dec. 30, 1950, with a moderately severe cystic acneform eruption of the face, anterior chest, and back. The face was quite dry, and there were practically no milia or comedones. There was no seborrhea of the scalp. She stated that the eruption had been present for about four months and that she had not experienced acne during adolescence.

The patient was questioned carefully about the use of laxatives, headache remedies, sedatives, and so forth to no avail. It was learned that iodized table salt was used in her home. Large doses of vitamin A were prescribed, and she was given a resorcinol mono-acetate-precipitated sulfur skin-colored cream with a water-washable base. She was told to use plain table salt.

Eight days later the patient telephoned and inquired whether or not the tetraethylthiuramdisulfide which she had been taking might have caused the eruption. When surprise was expressed at this revelation, she stated that she had not thought of it as a "drug" and had forgotten to mention it at the time when she had been questioned about "drugs." She stated that the medication had been prescribed to her by Dr. Richard C. Proctor about four months previously and that the eruption appeared shortly thereafter.

It was learned that on the day following her initial examination on Dec. 30, 1950, she had gone out of town and had neglected to take her tetraethylthiuramdisulfide with her. She stated that within two days after discontinuing use of the drug the eruption had almost completely disappeared.

On Jan. 8, 1951, use of tetraethylthiuramdisulfide was resumed with the usual dosage of 1 gm. daily along with 25 mg. of chlorprophenpyridamine (chlortrimeton®) maleate after meals and at bed time. The acneform eruption recurred within three days and within a week was as bad as ever. After two weeks use of both tetraethylthiuramdisulfide and chlorprophenpyridamine were discontinued, and the eruption cleared up within three or four days.

On Feb. 1, 1951, the patient resumed the use of tetraethylthiuramdisulfide along with 50 mg. of tripelennamine hydrochloride twice daily. The eruption recurred almost immediately but was not as severe as previously. On Feb. 7 the complete blood count findings were not remarkable, and at that time the use of tripelennamine was discontinued; however, the patient continued taking tetraethylthiuramdisulfide. Within a couple of days the acneform eruption was definitely more prominent. On Feb. 13 the patient resumed the use of tripelennamine in the previously mentioned dosage along with the use of tetraethylthiuramdisulfide. The large cystic lesions were gone within three days, but small acneform lesions continued to develop. After 10 days use of both tetraethylthiuramdisulfide and tripelennamine was again discontinued, and four days later no active lesions were discernible.

At the present time the patient is not inclined to resume the use of tetraethylthiuramdisulfide because she feels that she can get along without it, and she does not "cherish the thought of a bumpy face." Perhaps she may be persuaded to resume taking it later, and I hope to have the opportunity of making further observations on the effects of the various antihistamine drugs on this eruption.

COMMENT AND SUMMARY

A case is described in which there developed repeatedly a cystic acneform eruption of the face, anterior chest, and back, coincident with the ingestion of tetraethylthiuramdisulfide (antabuse®). I feel reasonably certain that the patient took no alcohol at any time while taking the drug and that the eruption was in no way related to any product resulting from a combination of alcohol and tetraethylthiuramdisulfide. Insofar as I am aware, this occurrence has not previously been reported. Withdrawal of the use of tetraethylthiuramdisulfide repeatedly resulted in subsidence of the eruption. Use of tripelennamine (pyribenzamine®) in a dosage of 50 mg. twice daily seemed to favorably influence the eruption, particularly the large cystic lesions which the use of chlorprophenpyridamine (chlortrimeton®) in dosages of 4 mg. four times daily did not noticeably affect. Further observations are necessary to determine the value and relative merits of antihistaminic drugs in controlling this type of eruption.

363 N. Elm St.

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POSTOPERATIVE ACUTE PANCREATITIS AND LOWER NEPHRON SYNDROME

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Acute pancreatitis occurring during surgery in regions remote from the biliary tract or as a postoperative complication of such surgery apparently is rare. A search of the literature has revealed only two case reports.[1] In the case which is the subject of this report the symptoms of acute pancreatitis first manifested themselves in the operating room during a transurethral resection in a patient who gave no history of gallbladder disease, who did not imbibe alcoholic beverages, and in whom at autopsy no evidence of biliary tract disease could be found. The case is of special interest because of the coexistence of the lower nephron syndrome. Although the lower nephron syndrome is not an uncommon complication of acute pancreatitis, the almost simultaneous occurrence of the two conditions in a patient subjected to transurethral resection provokes the thought that the two pathological processes may have had a common etiology and, further, that the surgical procedure may have played a directly causative role in both. Recent investigative work lends support to such a hypothesis.

REPORT OF A CASE

The patient was a 60-year-old white accountant who had enjoyed good health all his life except for the development of progressive difficulty in voiding during the two preceding years. Past history and inquiry by systems were noncontributory except for the history of occasional postprandial flatulence.

Three days prior to admission to the hospital the patient noted onset of frequency, urgency, dysuria, fever, and malaise. A urine specimen showed many leukocytes. The symptoms responded well to the administration of sulfacetimide, but on the day of admission, Aug. 8, 1950, acute urinary retention developed. Upon admission an indwelling catheter was inserted. The patient quickly became afebrile and asymptomatic.

Physical examination was essentially negative except for enlargement (3+) of the prostate gland. A cystogram showed slight bladder trabeculation. The results of routine blood and urine studies were normal, with a hemoglobin value of 15 gm. per 100 cc., a nonprotein nitrogen level of 27 mg. per 100 cc., and only an occasional white blood cell in the microscopic examination of the urine.

On Aug. 5, 1950, three days after admission, the patient was subjected to a transurethral resection. Spinal anesthesia was employed. A total of 60 gm. of prostatic tissue were resected. A large amount of distilled water was used for irrigation. Bleeding was described as moderately severe and was well controlled by electrocoagulation. The operative procedure lasted 115 minutes. During the last 30 minutes of the operation severe epigastric pain developed, requiring the supplementary use of nitrous oxide and intravenous injection of pentobarbital (nembutal®).

The patient continued to complain of abdominal pain upon return to his room. Severe persistent nausea and vomiting developed. On the second postoperative day a slight but definite jaundice was detected. The result of a hemoglobin determination on this day was 8.25 gm. as compared with 15 gm. on admission, indicating the hemolysis of a large amount of blood. A recheck of the blood used for transfusion revealed no incompatability. The urinary output during the first postoperative day was 250 cc. A conservative plan of therapy was adopted. The patient was given 1,000 cc. of fluid per day in addition to that lost in urine and vomitus. The anemia was corrected. Aberrations in the blood chemistry were corrected as they arose. Heat was applied to the lumbar areas. As the days passed and the likelihood of spontaneous recovery diminished, the following procedures were employed: lumbar sympathetic block, intravenous administration of procaine solution, administration of benzazoline hydrochloride (priscoline®), intravenous injection of aminophylline, and finally continuous gastric lavage. Abdominal discomfort, nausea, and vomiting continued. The urinary output ranged between 55 cc. and 202 cc. The nonprotein nitrogen level climbed to 120 mg. per 100 cc. Episodes of pulmonary edema occurred. On the thirteenth postoperative day the patient died suddenly.

Autopsy.—At autopsy an extensive nonhemorrhagic pancreatitis was found with the characteristic surrounding area of fat necrosis. No abnormality was found in the liver, gallbladder, and bile ducts. The kidneys were large and swollen, with an average weight of 220 gm.

Microscopic Description of Kidneys: The glomerular tufts were atrophic in an enormously dilated capsule. Within the capsule there was an inspissated fluid. The epithelial lining was conspicuously hypertrophied. There was no thickening of the capsule and no hyalinization of glomeruli. The collecting tubules contained reddish albuminous casts and granular casts. There were marked swelling and vacuolation of the epithelial cells. Edema and a patchy distortion of the parenchyma due to proliferating fibroblasts and an accumulation of mononuclear cells were also observed.

COMMENT

It has been suggested that proteolytic enzymes released from injured tissue may be responsible for the renal damage seen in the lower nephron syndrome.[2] This hypothesis is based on the observation that a known proteolytic substance, trypsin, when injected into rabbits will cause pathological changes in the kidneys which bear a striking similarity to those observed in the kidneys of a man dying of crush injuries or burns. It is generally accepted that the proteolytic enzyme activity of trypsin is the cause of the pathological changes of acute pancreatitis.[3] Furthermore, it is known that proteolytic enzyme activity may be induced in dogs by hemorrhage, that prostate gland tissue has considerable proteolytic enzyme activity, and that during operations in man there is commonly a marked increase in proteolytic enzyme activity.[4] In view of these considerations, it would seem justified in the case under discussion, in which there was extensive resection of prostatic tissue and considerable hemolysis of blood, to propose as a hypothesis that the resulting release of proteolytic enzymes may have been responsible for both the pancreatic and the renal damage.

It is interesting that the literature on acute pancreatitis is not completely devoid of support of such a hypothesis. In a case reported by Rich [3b] acute pancreatitis developed in a 13-year-old girl shortly after she had been burned. It was suggested by the author that the administration of 5% dextrose solution may have played a role in the development of the pancreatitis. Equally valid is the suggestion that the release of proteolytic enzyme from the burned tissue caused the pancreatitis and the intra-

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From the Union Memorial Hospital.

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venous administration of fluids played a contributory role through hemodilution, since dilution of plasma is one method of activating proteolytic enzyme.

In another case acute pancreatitis followed the transfusion of incompatible blood.[5] This case and the one reported here are strikingly similar. In both cases acute pancreatitis and acute renal tubular damage developed promptly after the hemolysis of a considerable amount of blood. In both there was no prior history of biliary tract disease and no evidence of biliary tract abnormality at autopsy.

The occurrence of pancreatitis in such widely varied disease entities as acute appendicitis, mumps, carcinoma of the cervix, transfusion reaction, and pyemia is explained more readily by an alteration in the chemical composition of the body than in terms of local disease of the bile or pancreatic ducts.[6] Finally, the discrete and patchy distribution of the fat necrosis of acute pancreatitis, often involving areas of the omentum and mesentery far removed from the pancreas, suggests that the necrotizing agent is blood-borne rather than liberated from ruptured pancreatic acini.

SUMMARY

A case of postoperative acute pancreatitis and lower nephron syndrome is reported. Evidence is presented which suggests that there may be a mechanism involved in some cases of pancreatitis other than the distention and subsequent rupture of pancreatic acini.

11 W. 29th St.

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METHANTHELINE (BANTHINE®) BROMIDE IN ACUTE PANCREATITIS

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and
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Recent studies conducted by us have revealed a reduction in the external secretion of the pancreas after vagotomy performed for peptic ulcer, and marked reduction in both volume and enzyme output of pancreatic juice when a patient is under the influence of a parasympatholytic drug, such as methantheline (banthine®) bromide.[1]

In addition, Ripstein[2] has reported a reduction in mortality from 72% to 24% by preliminary vagotomy in dogs in which acute pancreatitis was produced by injection of bile and trypsin into the pancreatic duct followed by ligation of the duct. In addition, we have succeeded in the prevention of pancreatitis by use of banthine® in dogs that had pancreatic duct ligation followed by a pancreatic stimulant, such as secretin or pilocarpine. Pancreatitis occurred in every instance in a similar group of animals that did not receive banthine®. Experimental and clinical evidence would suggest that human pancreatitis in many instances is caused by pancreatic duct obstruction in combination with active pancreatic secretion. Theoretically, either removal of the obstructing factor or inhibition of pancreatic secretion would interrupt the progress of the disease process.

REPORT OF A CASE

Mrs. B. V., aged 46, entered the hospital with complaint of severe, constant epigastric pain radiating through to the back of 48 hours' duration. She had had a similar attack of pain 10 months previously. The pain was associated with severe vomiting. There was no history of chills, jaundice, vomiting of blood, or melena. A gallbladder series done prior to admission revealed a nonfunctioning gallbladder.

Physical examination on admission revealed a blood pressure of 130/80; a temperature of 100.94 F. (38.3 C.), and a pulse rate of 100. There was marked tenderness with moderate muscle spasm in the midepigastrium. The remainder of the physical examination was normal. Laboratory studies revealed a hemoglobin of 12 gm. and a white blood cell count of 14,600. Urine examination was normal. The blood amylase value was 545 Somogyi units.

The patient was given 100 mg. of banthine® bromide intramuscularly, and within 20 minutes had almost complete relief of abdominal pain. She was then given 50 mg. of banthine® in the same manner every six hours for five days. She had no further abdominal pain, and no other drugs were required for relief of pain. Forty-eight hours after her admission to the hospital, a repeat of blood amylase determination revealed 55 Somogyi units. On the 10th hospital day, because of the evidence of gallbladder disease, the patient had an exploratory laparotomy which revealed the gallbladder wall to be slightly thickened but without evidence of acute inflammation. There were small stones present in the gallbladder. The common bile duct was not dilated and contained no stones or obstruction on exploration. Examination of the pancreas revealed it to be swollen, tense, and hemorrhagic in appearance, with several areas of surrounding fat necrosis in the omentum. The gallbladder was removed. Pathological examination revealed only minimal evidence of inflammatory reaction in the wall. The patient made an uneventful recovery.

COMMENT

Three additional patients with signs, symptoms, and laboratory findings of acute pancreatitis have been treated with banthine® bromide, 100 mg. given parenterally every six hours. All have had pronounced relief of pain, rapid fall in blood amylase values, and early general improvement. This would appear to be a satisfactory way of controlling an acute attack of the disease, to be followed by a search for any obstructing factors and their subsequent removal, when evident and possible, by conventional means. When obstructing factors are not evident, inhibition of external pancreatic secretion with banthine® during the active phase of the disease would seem a logical method of management. Such treatment seems to be on a sound physiological basis, since banthine® inhibits the nerve stimulus to pancreatic secretion by blockage of the vagus, and in addition inhibits acid secretion of the stomach, which is the chief mediator of hormonal stimulation of the pancreas.

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From the Department of Surgery, The Duke University School of Medicine.

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PROCEDURE FOR BLOOD TRANSFUSION IN HEART DISEASE AND IN ELDERLY SUBJECTS

ADMINISTRATION OF SEDIMENTED ERYTHROCYTES WITH PATIENT SITTING UPRIGHT

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N. Robert Frank, M.D.
and
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In situations requiring transfusion of large amounts of blood, a practical difficulty is frequently imposed by associated disorders which restrict the ability of the heart to accommodate to an increased blood volume. Among the latter are various types of heart disease, nephritis, and toxemias of pregnancy and old age, generally, in which cardiac reserve is limited.

Shock and anemia of marked degree significantly affect the heart of an aged patient and may cause coronary insufficiency with accompanying myomalacia.[1] Pernicious anemia often affects those of advanced years among whom coronary artery disease is prevalent, and the latter condition necessitates caution if rapid replacement of normal blood values by transfusion is indicated.

The frequency of complicating conditions in the administration of transfusions among the various services t the Kings County Hospital has led to the development e blood bank of a simple procedure that lends itself iversal employment.

PROCEDURE

Red blood cells are allowed to settle in the bottles in the refrigerator. If not disturbed for approximately 48 hours, the cells settle so that there is about 300 to 350 cc. of red blood cells to 250 to 300 cc. of plasma. With the aid of an empty vacuum bottle the plasma can be siphoned off in a few minutes.

The table presents an analysis of the sodium content of the siphoned plasma and of the residual blood (determined by flame photometric analysis), and the hemoglobin values of the sedimented blood. In five of the 16 cases, washing of sedimented blood cells removed only minimal additional quantities of sodium so that no practical advantage is gained by this involved procedure.

The sedimented blood was administered with the use of gravity at an elevation of 4 ft. by means of an 18- or 17-gage needle, and with the patient in the sitting posture. Flow was adjusted at the rate of 3 to 4 cc. per minute. Usually a total of 250 to 350 cc. of sedimented erythrocytes was administered at one time.

COMMENT

The procedure described possesses a number of important advantages.

1. The total volume of fluid administered intravenously is reduced by practically half. Several investigators who have used concentrated red blood cell suspensions have emphasized this advantage.[2]

2. Fully three-quarters of the sodium content is eliminated by transfusion of sedimented red cells. The average amount of sodium eliminated in the discarded fraction totaled 967.41 mg. in the cases analyzed in the table. The administration of sodium is interdicted in patients with heart disease, preeclamptic and eclamptic toxemia, and lower-nephron nephrosis in the anuric stage.

Analysis of Sodium Content of Plasma and Sedimented Red Cells

	Plasma		Sedimented Red Cells		
	Quantity Removed, Cc.	Sodium Content, Mg./100 Cc.	Quantity Given, Cc.	Sodium Content, Mg./100 Cc.	Hemoglobin, Gm./100 Cc.
1	270	345.5	350	152	20
2	250	376	290	139	21
3	260	352	330	99.5	21
4	270	342	320	106.2	23
5	340	340	300	105	22.5
6	270	350	330	130	21.3
7	300	360	310	122.5	20.4
8	270	356	310	157	18.6
9	250	370	300	129	19.2
10	300	366	300	118.5	19.9
11	250	374	340	114	20.8
12	210	360	350	116 84 *	19.4 23.6 *
13	250	364.5	310	132.5 109.5 *	18.3 22.9 *
14	260	354	310	125 106 *	19.7 21.5 *
15	270	361.5	340	117 105 *	20.3 21.5 *
16	300	355	270	114.5 83 *	20.9 22.9 *
Average	270	358.3	316	123.8	20.3

* Amount after washing.

3. Transfusion, traditionally, has been given to patients in the recumbent position, in which the rapid return of augmented blood volume to the heart has predisposed to pulmonary edema. This is averted when the patient is placed upright in a chair during the transfusion. During the past two years in which this transfusion technique has been employed, none of the patients had dyspnea or pulmonary edema.

In circumstances necessitating transfusion of large amounts of red blood cells, partial exchange transfusions may be performed, whereby the patient's whole blood is removed and replenished by sedimented red cells. Subsequently, the patient's own erythrocytes are returned after sedimentation has occurred and the plasma has been removed.

It is important to distinguish between the administration of sedimented red blood cells and packed red blood cells. Preparation of packed erythrocytes requires centri-

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From the Blood Bank and Department of Medicine, Kings County Hospital, Brooklyn, N. Y.

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2. DeGowin, E. L.; Harden, R. C., and Alsever, J. B.: *Blood Transfusion*, Philadelphia, W. B. Saunders Company, 1949, p. 438. Davis, P. G.; Eto, J. K., and Sennott, J. S.: Preparation and Use of Concentrated Red Blood Cell Transfusions in Infancy, J. Pediat. **28**: 449, 1946. Falkenstein, A. P.: Technic of Preparation and Preservation of Red Cell Units for Transfusion, Am. J. Clin. Path., Tech. Sec. **9**: 45, 1945. Mather, R. O.: Concentrated Red Blood Cells: Preparation and Use, Southern M. J. **38**: 330, 1945. Evans, R. S.: Use of Concentrated Red Cells as Substitute for Whole Blood in Transfusion Therapy of Anemia, J.A.M.A. **122**: 793 (July 17) 1943. Williams, G. E. O., and Davie, T. B.: Preparation and Use of Concentrated Red Cell Suspensions in Treatment of Anaemia, Brit. M. J. **2**: 641, 1941.

fugation, and centrifuges accommodating large containers of blood of various sizes and shapes are not generally available.

SUMMARY

A simple procedure is described providing safeguards in the administration of blood to elderly patients and to persons with heart disease and associated disorders, in which introduction of a large volume of fluid into the circulation is hazardous. This consists of administration of sedimented red cells with the patient in a sitting position. Fully three-quarters of the sodium content of whole blood is removed by this technique.

25 Lefferts Ave. (Dr. Gubner).

GANTRISIN® (SULFISOXAZOLE)-INDUCED GRANULOCYTOPENIA

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and
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Gantrisin® (3,4-dimethyl-5-sulfanilamido-isoxazole, also known as sulfisoxazole, and NU-445) is a relatively new sulfonamide which is now being widely used in the treatment of various bacterial infections, particularly those of the urinary tract. Recently, a case of agranulocytosis following the administration of this drug was reported.[1] In a careful examination of the literature, the authors of this report were able to find only eight instances in which use of the drug had led to leucopenia.[2] Most of the other investigators have emphasized the low toxicity of the compound. We wish herewith to report another instance of bone marrow depression presumably caused by gantrisin,® in order to reemphasize the possible dangers inherent in its use.

REPORT OF A CASE

E. L., aged 74, was first seen at the Research and Educational Hospitals, University of Illinois, for surgical treatment of benign prostatic hypertrophy and chronic pyelitis. At the time of his first admission, the white blood cell count was 12,400 cells per cubic millimeter. Postoperatively, the patient did well, receiving penicillin, streptomycin, and aureomycin.

One month after discharge, one course of gantrisin® lasting 24 days (4 gm. per day in divided doses) was given in an attempt to control a continuing, moderately severe pyuria. This treatment was only partially successful, but the number of leucocytes in the urine diminished considerably. About two months later, a recrudescence of the pyuria led to a second similar course of gantrisin,® lasting one week. The sulfonamide was then replaced by aureomycin hydrochloride (2 gm. per day) for one week, and finally the use of aureomycin was discontinued, and gantrisin® was given again.

Two weeks after the institution of the third course of gantrisin,® and three days prior to the patient's second admission to the hospital, marked pharyngitis, laryngitis, and dysphagia developed. The temperature rose to 103 F., and examination of the blood showed a white cell count of 2,600 per cubic millimeter, with 36% neutrophils and 64% lymphocytes. Gantrisin® was immediately discontinued. Four hundred thousand units of penicillin procaine was given, and the patient was admitted to the Research and Educational Hospitals.

On admission, the patient stated that he was already improving. Physical examination showed the pharynx to be markedly inflamed, with multiple small ulcers covered by a yellowish membrane on the posterior pharyngeal wall, tonsillar pillars, and soft palate. His voice was hoarse and swallowing was difficult. The rest of the physical examination contributed nothing, and only a few pus cells and a trace of protein were found in the urine. Blood chemistry values were within normal limits, blood culture was sterile, and nose and throat cultures revealed no pathogenic organisms.

At the time of admission, the blood leucocyte count had risen to 5,700 cells per cubic millimeter, the erythrocyte count was 4,600,000 cells per cubic millimeter, the hematocrit value was 39%, and the sedimentation rate was 35 mm. per hour, corrected (Wintrobe). The differential leucocyte count showed neutrophilic myelocytes 1%, neutrophilic metamyelocytes 3%, stab forms 64%, polymorphonuclear neutrophils 9%, lymphocytes 7%, and monocytes 16%. The bone marrow was described as "cellular, with a marked left 'toxic' shift in the myeloid series; erythroid and megakaryocytic elements normal."

Mixed penicillin G and penicillin procaine, 3,200,000 units per day, was given for one week. The pharyngitis and laryngitis rapidly cleared, both objectively and subjectively, and a repeat blood examination nine days after admission showed a white blood cell count of 8,200 per cubic millimeter with 67% polymorphonuclear neutrophils, 28% lymphocytes, 4% monocytes, and 1% basophils. The neutrophils uniformly contained basophilic stippling. Fourteen days after admission the white cell count was unchanged, with 78% polymorphonuclear neutrophils, 16% lymphocytes, and 6% monocytes. All the cells showed normal morphological characteristics. The urine at this time contained only 1 or 2 leucocytes and no protein, and the patient was discharged.

It would appear that the administration of gantrisin® was followed by a severe granulocytopenia with formation of so-called toxic granules in the cells of the myeloid series. Fortunately, the condition was recognized at an early date and the medication discontinued with rapid subsequent recovery. The possibility that a drug sensitivity may develop after repeated use of a given drug must always be borne in mind when one is dealing with new agents, particularly those of the sulfonamide group.

The possibility that rest periods between courses of therapy with a given drug are important in the development of sensitivity is of some interest. In this respect, the observations of Dowling and Lepper and of Lyons and Balberor [3] are important. These authors demonstrated a threefold increase in incidence of drug reactions accompanying a second course of therapy with a given sulfonamide.

SUMMARY

A case of granulocytopenia following administration of gantrisin,® with rapid recovery following discontinuation of the medication and institution of penicillin therapy in massive doses, is described.

1853 W. Polk St.

From the medical service of Robert W. Keeton, M.D., Research and Educational Hospitals, University of Illinois.

[1] Haunz, E. A.; Cardy, J. D., and Graham, C. M.: Agranulocytosis Due to Gantrisin: Report of a Case with Recovery, J. A. M. A. **144:** 1179 (Dec. 2) 1950.

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[3] Dowling, H. F., and Lepper, M. H.: "Drug Fever" Accompanying Second Courses of Sulfathiazole, Sulfadiazine, and Sulfapyridine, Am. J. M. Sc. **207:** 349 (March) 1944. Lyons, R. H., and Balberor, H.: Febrile Reactions Accompanying the Readministration of Sulfathiazole, J. A. M. A. **118:** 955 (March 21) 1942.

HEMORRHAGIC BULLOUS URTICARIA TREATED WITH CORTICOTROPIN

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Hemorrhagic bullous urticaria fortunately is rare. It is a serious reaction because it is usually associated with visceral involvement, and it may end fatally.[1] We have recently seen a case which had a favorable course and believe credit for this should be given to corticotropin (ACTH).

REPORT OF A CASE

A white man, aged 46, was seen by one of us (G. M. L.) on Aug. 14, 1950, because of cellulitis of the left leg extending from the midtibial region to the knee. He was given 400,000 units of depot penicillin G in peanut oil daily for five days. Ten days later generalized urticaria developed which did not respond to orally administered antihistaminic drugs. On Aug. 27, 1950, he was given a subcutaneous injection of 0.5 cc. of epinephrine 1:1,000, which caused pallor, profuse sweating, and tachycardia, but which had no effect on the urticaria. He was then given ephedrine hydrochloride orally, also without any pronounced therapeutic result. When seen again four days later, in addition to the urticaria there were multiple bullous lesions 3 to 5 cm. in diameter on the trunk and upper extremities, and numerous cutaneous hemorrhagic areas with a similar distribution. There was also a brawny edema of the arms, legs, chest, and face, especially marked in the lower lip and periorbital areas. The patient was hospitalized on Aug. 31, 1950. The temperature on admission was 101.4 F., pulse 98, and respirations 20. The white blood count was 4,550 at this time with the following differential: eosinophils 1, lymphocytes 12, monocytes 5, segmented polymorphonuclears 2, nonsegmented polymorphonuclears 60. The red blood cell count was 5,060,000 with a hemoglobin value of 15.8. The urine pH was 6.5, specific gravity 1,023, with 1+ albumin. The blood urea nitrogen was 14 mg. per 100 cc.

For the intense pruritus the patient was given an intravenous drip of 500 cc. of 0.1% procaine in isotonic saline, but with slight relief. It was then decided to administer 20 mg. of corticotropin intramuscularly every six hours. During the next 36 hours he complained at times of cramp-like abdominal pain. At no time was there any evidence of hemorrhage from either the gastrointestinal or urinary tract. He also complained of a sore throat, but no lesions were seen. After two days of therapy, no new bullae or hemorrhages appeared, and dosage of corticotropin was reduced on the sixth day to 10 mg. every six hours, and then 20 mg. daily for two days. The edema subsided gradually and was completely resolved on the fourth day. The bullae did not rupture, but dried by the fourth day. On the eighth day the patient was discharged, and has remained asymptomatic except for an occasional urticarial wheal.

COMMENT

Previously this patient had received penicillin parenterally in December, 1945, and in February, 1950, because of throat infections, as he had had rheumatic fever with residual mitral and aortic valve involvement, well-compensated. He had also used penicillin dust inhalations frequently during the previous two years for colds, without any toxic or allergic reaction. He had used a sulfonamide nose spray intermittently for about two years until April, 1945, when joint pains, which by exclusion proved to be due to the sulfonamide, developed.

CONCLUSIONS

A reaction to penicillin resulting in hemorrhagic bullous urticaria is reported.

The patient's condition was not improved by antihistamines, by ephedrine administered orally, or by subcutaneous epinephrine 1:1,000.

The bullous and hemorrhagic lesions cleared with the administration of corticotropin (ACTH).

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From the Allergy Department of Michael Reese Hospital.

1. Somitz, M. H.; Horvath, P., and Bellet, S.: Hemorrhagic Bullous *Eruptions Due to Penicillin G,* Ann. Allergy **8**:377 (May) 1950. Berne, R. M.: An Unusual Sensitivity Reaction to Penicillin: Report of a Case with Autopsy Findings, New England J. Med. **242**:814 (May 25) 1950.

COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

This paper is one of a series requested by the Council on National Emergency Medical Service to inform the medical profession on problems pertaining to civil defense. It does not necessarily reflect, however, the opinions of the Council or of any other official body unless so stated in the article.

C. JOSEPH STETLER, *Secretary.*

ATOMIC BOMB INJURY: MECHANICAL INJURIES

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One-half to three-fourths of the casualties surviving an atomic bomb explosion over a metropolitan area can be expected to have incurred mechanical injuries. These are likely to be multiple and may be associated with burns and with the effects of nuclear radiation. Otherwise, there is nothing in the treatment of these wounds which sets them apart from those encountered daily in surgical practice. Any plan for the management of casualties in the event of an atomic bomb attack, however, must be conditioned by the fact that wounds will occur in overwhelming numbers. In addition, there will be widespread destruction of physical facilities. It is early after an atomic bomb attack that panic and confusion may exist, and it is during that time that previously made plans for the management of mass casualties will be most effective. In this paper, therefore, the early rather than the subsequent care of the wounded will be discussed from the point of view of the safest and most expeditious way of handling casualties in large numbers. The logistics and the management of injuries peculiar to an atomic bomb explosion have been described in previous articles of this series.[1]

The pressure wave resulting from an atomic bomb explosion is longer in length and in duration than that set

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From the Department of Surgery, Western Reserve University School of Medicine at City Hospital.

1. (*a*) Sargent, J. C.: Civil Defense Organization and Medical and Health Services in Civil Defense, report to the Council on National Emergency Medical Service, J. A .M. A. **145**:897-900 (March 24) 1951. (*b*) Long, P. H.: Local Tactical Planning and Logistics in Medical Aspects of Civil Defense, report to the Council on National Emergency Medical Service, ibid. **145**:979-983 (March 31) 1951. (*c*) Lyon, G. M.: Radiological Aspects of Civil Defense, report to the Council on National Emergency Medical Service, ibid. **146**:465-471 (June 2) 1951. (*d*) Evans, E. I.: Atomic Burn Injury, report to the Council on National Emergency Medical Service, ibid. **145**:1342-1345 (April 28) 1951. Evans, E. I.: The Burn Problem in Atomic Warfare, ibid. **143**:1143-1146 (July 29) 1950.

up by an explosion of a conventional nitroglycerine bomb. Except very close to ground zero, however, it does not reach the intensity of pressure needed to injure gas-containing organs (ears, gastrointestinal tract, lungs). The minimal pressure that will produce direct blast injury is generally taken to be 35 lb. per square inch, and this is not encountered outside a radius of 1,000 ft. (304 m.) from the detonation of an atomic bomb of the type used at Hiroshima and Nagasaki. Within this radius, almost complete destruction is expected. Survivors with direct effects of blast, therefore, will be encountered only exceptionally, if at all. None were noted among survivors at Hiroshima and Nagasaki.

Indirect injuries, on the other hand, will be encounered in great numbers. The collapse of buildings and helters, flying debris, and especially flying glass will ause a large number of mechanical wounds. If a bomb imilar to those dropped over Hiroshima and Nagasaki s used over a metropolitan area, mechanical injuries of varying degrees of severity can be expected in an area of some 200 to 300 square miles (500-775 sq. km.) bout ground zero.[2] Leader-Williams and Smith [2] have stimated that with a population density of 43 persons per acre in houses, there would be 27,400 killed and 5,900 wounded. This number of casualties, which might e at least doubled in a daytime attack over an industrial enter, would certainly overtax standard facilities even they were not demolished. It is imperative that careful lans be formulated for the effective use of local and eighboring medical facilities in such an eventuality, in order to provide a maximum of medical care with a minimum of confusion.

GENERAL CONSIDERATIONS

Triage.—Time, materials and personnel are spared by areful triage of casualties at collecting points [1b] set up in locations determined by factors such as the safety for ersonnel and the availability of routes for evacuation. The casualties reaching these points are segregated into severely wounded and lightly wounded. The former are vacuated to installations (regular hospitals which escaped destruction or improvised hospitals in factories, chools, etc.) only a litter carry or short ambulance ride away, where definitive surgery can be done. The lightly njured are evacuated to remote homes or hospitals for treatment. Only emergency treatment can be accomplished at collecting points. Resuscitation for severe hock can be started; hemorrhage can be stemmed; an open wound of the thorax can be converted into a closed one. Mature judgment by experienced personnel must be exercised at these points. It is desirable to designate certain installations as centers where certain types of wounds may be collected and treated.

Relief of Pain.—The majority of casualties can be made quite comfortable by first-aid treatment and do not require narcotics for pain. Fear, anxiety, and mental anguish are commonly mistaken for pain. They should be distinguished from the latter for they are treated differently.[3] Where pain is not an important factor in the clinical picture, small doses of barbiturates along with reassurance are safer and more effective than morphine. When pain is present, morphine or a similar narcotic should be used; but, as emphasized by Beecher,[4] certain features concerning the use of narcotics and other drugs shortly after wounding should be borne in mind:

1. The administration of a sedative (barbiturate) along with morphine renders the latter more effective.
2. In the presence of shock, drugs should be administered intravenously instead of hypodermically or intramuscularly. Failure of absorption from the skin or muscles renders the drugs ineffective. Moreover, if injection is repeated, dangerous overdosage may occur when the circulation is restored and absorption has returned to normal.
3. Among adults, an average dose of morphine hydrochloride (10 mg.) is usually as effective as larger amounts and has fewer side-effects. Except among addicts, it is seldom necessary to administer as much as 15 mg.

While morphine is an unquestioned godsend for the sick in pain, its misuse, aside from the question of addiction, has done more harm than good. Whether or not to stockpile morphine or its derivatives and substitutes and to make it readily available to non-medical rescue squads for use in case of civilian catastrophe deserves serious consideration. It is questionable whether narcotics should be used indiscriminately forward of the collecting points.

Wound Shock. — Number Requiring Treatment: Leader-Williams and Smith [2] estimated that an atomic bomb explosion similar to that at Hiroshima might result in 14,900 seriously injured casualties requiring treatment. In the Texas City disaster,[5] 800 of approximately 4,000 casualties were injured severely enough to warrant hospitalization. From this experience, it might be expected that one out of five of the casualties from an atomic attack would require treatment for wound shock. The enormous magnitude of the problem is obvious.

Manifestations: The clinical picture and the pathologic physiology of traumatic shock among casualties of an atomic bomb attack will differ in no way from that observed among battle casualties in World War II [6] or, for that matter, from that observed to result from an automobile accident. The fundamental abnormality in traumatic shock is oligemia. The manifestations are modified by the wound itself, the reactivity of the individual, and the treatment he has received. If the wound is not properly treated, infection may alter the picture. The oligemia of traumatic or wound shock results from the loss of whole blood from the circulation. After a few hours, most patients in traumatic shock show hemodilution in the active circulation. In contrast, patients with severe burns and with the crush syndrome show hemoconcentration. Oligemia in these patients results from the loss of plasma.

Correction of Oligemia: The management of wound shock requires correction of the oligemia, usually by replacement of whole blood, and treatment of the wound. Among the severely wounded, vigorous resuscitation is started when the casualty is first seen and precedes wound management except when the nature of the injury makes resuscitation ineffective, as in concealed bleeding or gastrointestinal perforation. Under these circumstances, it may be necessary to undertake wound surgery promptly as a vital part of resuscitation.

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[2] Leader-Williams, E., and Smith, J.: Medical Aspects of Atomic Warfare: Assessment of Possible Casualties and Damage, Practitioner **165**: 594-602 (Dec.) 1951.

[3] Beecher, H. K.: Pain in Men Wounded in Battle, Ann. Surg. **123**: 96-105 (Jan.) 1946.

[4] Beecher, H. K.: Early Care of the Seriously Wounded Man, J. A. M. A. **145**: 193-200 (Jan. 27) 1951.

[5] (*a*) Blocker, V.: The Texas City Disaster: The Pattern of Injury in 3,000 Casualties, Tex. Rep. Biol. & Med. **7**: 22-32 (Spring) 1949. (*b*) Blocker, V., and Blocker, T. G., Jr.: The Texas City Disaster: A Survey of 3,000 Cases, Am. J. Surg. **78**: 756-771 (Nov.) 1949.

[6] Beecher, H. K.; Simeone, F. A.; Burnett, C. H.; Shapiro, S. L.; Sullivan, E. R., and Mallory, T. B.: The Internal State of Severely Wounded Man on Entry to the Most Forward Hospital, Surgery **22**: 672-711 (Oct.) 1947.

In the event of an atomic bomb explosion, blood will be a scarce commodity. As a conservative estimate in a catastrophe of this magnitude, 10,000 pints of blood would be required during the first 48 hours; and most of this, if available, would be used during the first 12 to 24 hours. For the greatest economy in the use of blood, as well as for the best interest of the patient, resuscitation must be conducted rapidly to permit wound surgery as soon as possible. Beecher[4] considers casualties ready for operation when:

1. The systolic blood pressure has already reached 85 mm. of mercury and is rising.
2. The pulse rate is falling.
3. The skin is warm.
4. Good color has returned to the mucous membranes.

Resuscitation is continued during the operative procedure according to indications for the particular case.

Degrees of Oligemia: While the correction of oligemia is guided by the patient's physiologic reactions, it is well to keep in mind the probable degrees of oligemia with which one is dealing. A normal adult may lose 15% of his normal blood volume without showing signs of shock. A casualty in severe shock, however, may have lost 50% or more of his blood volume. Mild degrees of shock may be associated with losses of 25 to 35% of the circulating blood. These values are useful as approximations for planning and not as absolute volumes which must be replaced invariably for casualties in shock.

Failure of Resuscitation: The preparation of casualties for surgery in the shock ward of a receiving hospital should be under the direction of an experienced physician or surgeon in constant attendance. He will be in the best position to determine when resuscitation has corrected shock sufficiently to make surgery safe. It is hoped that the diagnosis of irreversible shock will never be made and the patient therefore abandoned, because failure of resuscitation is often due not to irreversibility but to unrecognized bleeding, head injury, tension pneumothorax, massive fat embolism, atelectasis, or fulminating infection.

Stockpiling of Blood and Blood Plasma.—Whole blood cannot be stockpiled in sufficient quantities for a mass catastrophe. There is *no substitute* for whole blood, but use of blood plasma is a beneficial expedient until blood is available. In the case of burns and the crush syndrome, plasma can be used exclusively. When properly processed, blood plasma is safe and can be stockpiled in strategic areas. It, too, will be a rather scarce commodity. A constant search is therefore being made for other substances which can be used to expand the plasma volum such as gelatin, globin, dextran, and polyvinylpyrrolidon ("periston"). Since the effectiveness and metabolic fat of these substances is still being investigated, the storag of large quantities for mass casualties is scarcely advisable at this time.

Oral hypotonic salt solutions have been recommende for patients in shock.[7] This can apply only to the lightl injured, for the severely wounded should not be fed solid or liquids before surgery. In any event, assimilatio would be poor. In fact, though thirsty, patients in sho would vomit fluids taken by mouth; and this is especiall *true in burn shock* where, theoretically, such solution might be most useful.

Management of the Open Wound.—The principles resuscitation and the care of open wounds among ma casualties are directed toward the restoration of disturbe physiology and the conversion of the contaminated infected wound to one which will granulate without i fection and which can be closed within as short a peri of time as possible. Timing is important, especial among casualties in which open wounds may exist addition to exposure to radiation. As Pearse and Payne have pointed out, it is well to have such wounds heal within two weeks, because after that time the effects ionizing radiation on the healing properties of tissues m seriously interfere with recovery.

In the event of a major catastrophe, wounds must treated according to a master plan based upon simplici and effectiveness. Churchill[10] described such a plan a paper as timely now as it was then, based upon acti experience in World War II. He divided the surgical ca of the wound into three phases: initial, reparative, a reconstructive. Initial surgery is done as soon as possi after injury, often as a part of resuscitation itself. Rep ative surgery aims to close the wound and to effect he ing without infection and with minimal scarring. Ideall this is accomplished 5 to 10 days after wounding. Reco structive surgery is done electively weeks or months lat in order to effect accurate anatomic restoration and improve the function of tissues spared from injury. R parative and reconstructive surgery need not be discuss here, for by the time the patient is ready for them, t acute emergency arising from the atomic explosion over. By that time, casualties are well dispersed and tre ment can proceed according to generally accepted s gical principles.

Débridement of Wounds.—Débridement is the esse tial feature of initial surgery for victims of a mass cata trophe. By definition, this operation consists of the moval of traumatized, contaminated tissue. All gross devitalized tissue is removed. Complementary incisio must be made along natural planes and must be adequa for exposure of the depths of wounds. Most serious inf tions arise from foreign material or devitalized tiss overlooked when débridement has been cursory and s perficial. Large foreign bodies should be removed, but is unreasonable to spend hours seeking minute forei bodies. Casualties with small pieces of imbedded forei

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7. Scheele, L. A.: Saline Solution in Treatment of Burn Shock, Ohio M. J. **46**: 1171-1172 (Dec.) 1950.

8. Deleted on proof.

9. Pearse, H. E., and Payne, J. T.: Medical Progress: Mechanical and Thermal Injury from the Atomic Bomb, New England J. Med. **241**: 647-653 (Oct. 27) 1949.

10. Churchill, E. D.: The Surgical Management of the Wounded in the Mediterranean Theater at the Time of the Fall of Rome, Ann. Surg. **120**: 268-283 (Sept.) 1944.

material should be watched carefully for the development of serious anaerobic infection. The wound is covered with a simple dressing which, barring complications, is not removed until the patient is in the operating room for secondary closing of the wound. This practice spares personnel and avoids secondary infection.

With few exceptions débrided wounds must be left unsutured because it is impossible to be certain that all devitalized tissue has been removed at the time of débridement. Well débrided wounds will be ready for closure by the 5th to 10th day. By that time any devitalized tissue which had been left behind is easily identified and can be excised before closure.

While concessions should not be made to problems of plastic closure of wounds, it is useless to sacrifice skin needlessly, and incisions for exploring the depth of wounds should be planned so that secondary closure may be facilitated. Cruciate incisions and incisions over bony prominences should be avoided. Large muscles, blood vessels, and nerves should not be transected; and vital structures should be spared.

Antibiotic and chemotherapeutic agents are useful adjuncts to careful wound surgery. There is little, if any, evidence that such agents are useful locally.[11] They will not sterilize the poorly débrided wound and they are not needed locally in the well-débrided wound. Even after thorough débridement open wounds should be considered contaminated, and antibiotics should be used systemically as adjuvants to good surgery. Penicillin is useful not only for this purpose but also for protecting a patient whose hematopoietic system may have sustained injury from exposure to ionizing radiation.

Anesthesia in Mass Casualties.—This subject has been covered very well in a recent paper by Beecher,[4] and it need not be detailed again here. It is important to emphasize that most patients with simple wounds can be treated with local anesthesia, nerve block, nitrous oxide, or thiopental (pentothal®) sodium. The last is contraindicated in patients in actual or impending shock and in patients with injuries about the neck. For major procedures ether anesthesia with or without nitrous oxide induction remains the easiest and safest. Curare and its derivatives should not be used under the conditions which will probably exist where initial surgery is done.

SPECIFIC INJURIES

Crush Syndrome.—In a catastrophe where collapse of buildings takes place, a number of casualties will be trapped beneath rubble, timbers, and masonry.[12] The ischemia from pressure upon major blood vessels results in biochemical changes within striated muscle so that upon release of pressure and reestablishment of the blood supply, myohemoglobin and other compounds are liberated into the circulation. In man, through mechanisms which are not yet clearly understood, this results in injury to the kidney with ensuing degrees of oliguria and anuria. Death owing to renal failure is common. This has been called the "crush syndrome." [13] It was not observed in the Texas City disaster of 1946,[5b] nor was it described among casualties at Hiroshima and Nagasaki.[14] It was common, however, among the injured rescued from collapsed buildings during the Battle of Britain [12] and was seen under similar circumstances among battle casualties in World War II.[13a]

Bywaters [12] recommended the administration of substances at the time of rescue which would produce an alkaline reaction in the urine, on the basis that acid urine would cause precipitation of myoglobin or its derivatives and would lead to anuria by tubular blockage. This possibility has not been adequately tested, since such casualties have not been "alkalized" before rescue. However, when alkalization has been attempted shortly after release from the compression or during the period of oliguria and anuria, alkalization has not been effective.[13a] Doubt is cast upon the theoretical value of alkalization by experience in the management of blackwater fever and other related conditions.[13b,c]

It has been suggested that compression bandages may be useful in prophylaxis.[13d,e] They can be applied to the ischemic limbs easily by first-aid men trained in the management of such cases. Amputation of affected limbs is not recommended for prophylaxis. By the time cases which would be helped by it are recognized, damage will already have been done to the kidneys, and amputation would be ineffective.

Clinically and pathologically, there is no distinction between the anuria which is part of the crush syndrome and that which follows other forms of trauma and shock or incompatible blood transfusion and reactions to toxic agents. No method for inducing diuresis has thus far proved effective.[13b] The treatment of such casualties has been described by Burnett and associates [13f] and by Strauss.[13g] Essentially, overhydration and salt administration must be avoided, and insofar as possible, the caloric requirements should be provided in the form of carbohydrate.

Head Injuries.—There is no information concerning the incidence of head injuries among the casualties at Hiroshima and Nagasaki. Among some 4,000 casualties from the Texas City disaster [5a] there were over 200 patients with head injuries, most of whom had experienced periods of unconsciousness varying from a few moments to 48 hours. Thirty-five had sustained fractures of the skull. Following an atomic bomb explosion over a metropolitan area, one might expect 25 to 50 times this number of patients with head injuries, at least one-quarter of whom would require hospitalization. Except for general resuscitative measures, it is best to evacuate patients with head injuries directly and as expeditiously as possible to installations where neurosurgeons are available and definitive treatment can be accomplished.

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[11] Certain serous-lined cavities, such as the joints and thorax, are thought to be exceptions to this rule. On the basis that antibiotics do not actively enter these spaces, these drugs have been instilled locally at the time of initial surgery as well as administered systemically.

[12] Bywaters, E. G. L.: Ischemic Muscle Necrosis: Crushing Injury, Traumatic Edema, the Crush Syndrome, Traumatic Anuria, Compression Syndrome, A Type of Injury seen in Air Raid Casualties Following Burial Beneath Debris, J. A. M. A. **124**: 1103-1109 (April 15) 1944.

[13] (*a*) Simeone, F. A.; Mallory, T. B.; Burnett, C. H.; Shapiro, S. L.; Beecher, H. K.; Sullivan, E. R., and Smith, L. D: V. The Crush Syndrome in Battle Casualties, Surgery **27**: 300-319 (Feb.) 1950. (*b*) Foy, H.; Altmann, A.; Barnes, H. D., and Kondi, A.: Anuria: With Special Reference to Renal Failure in Blackwater Fever, Incompatible Transfusions, and Crush Injuries, Tr. Roy. Soc. Trop. Med. & Hygiene **36**: 197-238 (Jan.) 1943. (*c*) Maegraith, B. G., and Havard, R. E.: Dangers of Intensive Alkali Treatment in Blackwater Fever, Lancet **2**: 338-339 (Sept. 9) 1944. (*d*) Patey, D. H., and Robertson, J. D.: Compression Treatment of Crush Injuries of Limbs, ibid. **1**: 780-782 (June 21) 1941. (*e*) Corcoran, A. C., and Page, I. H.: Post-Traumatic Renal Injury: A Summary of Experimental Observations, Arch. Surg. **51**: 93-101 (Sept.) 1945. (*f*) Burnett, C. H.; Shapiro, S. L.; Simeone, F. A.; Beecher, H. K.; Mallory, T. B., and Sullivan, E. R.: Post-Traumatic Renal Insufficiency, Surgery **22**: 994-1028 (Dec.) 1947. (*g*) Strauss, M. B.: Acute Renal Insufficiency Due to Lower-Nephron Nephrosis, New England J. Med. **239**: 693-700 (Nov. 4) 1948.

[14] Leroy, G. V.: The Medical Sequelae of the Atomic Bomb Explosion, J. A. M. A. **134**: 1143-1148 (Aug. 2) 1947.

Eye injuries are commonly associated with wounds of the head. Initial treatment should be conservative. Solutions containing atropine should not be instilled into the conjunctival sack. Enucleation should be done only when the irreparably damaged eye has to be removed as a part of adequate débridement. It should not be done without expert advice. Sympathetic ophthalmia is not a problem during the phase of management included under "initial surgery." This serious complication seldom occurs before a week or ten days from the time of injury, and there is some evidence that with the use of antibiotics it is to be feared less than it was a decade ago.

Wounds of the Chest.—Penetrating and crushing wounds of the chest require special mention because simple procedures may be life-saving in many instances. The need for the arrest of hemorrhage and for the correction of disturbed cardiopulmonary physiology constitute acute emergencies. Hemorrhage from penetrating wounds and from fractured ribs may be concealed and may occasionally lead to hemorrhagic shock and death without producing respiratory embarrassment. Bleeding within the thorax, often from an intercostal artery, should therefore be suspected when there is traumatic shock without trauma elsewhere. Air and blood should be aspirated from the chest when present in significant amounts. Continued rapid bleeding into the chest requires open thoracotomy.

Sucking Wounds: Cardiorespiratory balance is disturbed dramatically by three conditions: (*a*) the open chest ("sucking wound" of the chest), (*b*) tension pneumothorax, and (*c*) crushed or "stove-in" thorax. The emergency treatment for the sucking wound of the chest is immediate closure by any available means, whether it be by gauze pack, petrolatum gauze and adhesive, or even the flat of the hand. More adequate closure can be effected at the time of débridement when the patient reaches the first hospital installation away from the collecting point.

Tension Pneumothorax: Tension pneumothorax can be responsible for shock by interfering with the cardiac output, and dramatic improvement results from release of pressure by a needle inserted through the second or third interspace anteriorly. It is essential to keep this possibility in mind as a cause of shock. Once thought of, the diagnosis and treatment are easy. The needle can be connected to a water-seal or can be fitted with a rubber-dam flutter valve.

Rib Fractures: Forceful blows against the chest from flying blunt missiles or from collapsing walls and ceilings may result in fractures of the rib cage with interruption of the continuity of individual ribs in two or more places. The injury may produce traumatic asphyxia from the sudden increase in venous pressure. If the casualty does not succumb from serious injury to the intrathorac
viscera, severe respiratory embarrassment may resu
from the loss of fixation and the paradoxical moveme
of the damaged section of the chest wall. Pendulu
movement of air from one lung to the other increases t
dyspnea and cyanosis. Pain with respiration further i
pairs the effort of the patient to breath, increases t
dyspnea, and promotes the development of atelectas

Patients with traumatic asphyxia can be relieved
measures which abolish respiratory pain and which c
rect the paradoxical motion of the chest wall. The form
can be accomplished by procaine block of the involv
intercostal nerves. The latter can sometimes be acco
plished by adhesive strapping over a firm gauze pa
When more than five or six ribs are involved, it becon
necessary to immobilize them either by wiring the fr
tured ends together or by grasping them securely in hoo
at both ends of the intermediate segment and plac
them on traction.

Vascular Injuries.—The incidence of injuries to la
blood vessels in a catastrophe such as an atomic bo
explosion is not known. That some would occur as
result of flying glass and other secondary missiles is
be expected. Actual or suspected injury to import
vessels should be noted, and the casualty should rece
high priority for surgical treatment. There is noth
unique about vascular wounds to be expected after
atomic explosion. They will resemble those incurred
warfare and will present the same problems of mana
ment.[14a] Nerve injuries will be commonly associated
wounds of the blood vessels. Other than noting their p
ence, the treatment of wounds of the nerves themsel
should be delayed for some three weeks.

Mild to moderate bleeding can usually be contro
by means of a well-applied dressing. The tournic
should be reserved for the control of serious hemorrh
Rescue squads should be carefully instructed in its
however, for more harm than good can come from
misuse. Special and elaborate tourniquets are not ne
sary. The most serviceable tourniquet is the soft
strong piece of rubber tubing of sufficient length to en
one to wind it three or four times around an adult's th
When necessary, the tourniquet should always be appl
with sufficient tension to occlude arterial circulation.
classic rule that tourniquets be released every 20 or
minutes should be abandoned.[15] The tourniquet sh
be removed, of course, as soon as definitive surgery
be done; but until then, it may be left on for at least
hour and up to two hours before release is necessary
should be released in the presence of a physician who
determine whether the bleeding can be controlled sim
by the application of a firm dressing or whether
tourniquet needs to be reapplied. It should never be
leased, regardless of time, in patients who are in sh
unless resuscitation with blood replacement is well un
way.

Fractures.—Eleven per cent of the casualties admi
to the Ninoshima Hospital in Hiroshima after the ato
bomb explosion sustained fractures.[14] Roughly the sa
proportion was found in the Texas City disaster.[5]
hundred thirty-three of the Texas City casualties adn

[14a] DeBakey, M. E., and Simeone, F. A.: Battle Injuries of the Arteries in World War II: An Analysis of 2,471 Cases, Ann. Surg. **123**: 534-579 (April) 1946; abstracted, Bull. U. S. Army M. Dept. **5**: 295-300 (March) 1946.

[15] Wolff, L. H., and Adkins, T. F.: Tourniquet Problems in War Injuries, M. Bull. Mediterranean Theat. Op. **3**: 23-25 (Jan.) 1945; Bull. U. S. Army M. Dept. (No. 87) pp. 77-84 (April) 1945.

ted to the John Sealy Hospital in Galveston,[5] had fractures, 34 (26%) of which were compound fractures. It is to be expected, therefore, that large numbers of casualties will require treatment of simple and compound fractures after an atomic bomb explosion over a metropolitan area.

Fractures, whether simple or compound, must be splinted before the patient is moved. Narcotics are very seldom needed before a patient comes under medical supervision if a proper splint has been applied. Initial surgery for compound fractures should be done as early as possible: in installations near the collecting points in the case of the severely wounded, and in hospitals of the next echelon in the case of the lightly wounded. It is not necessary in this phase of management to go to extremes to effect accurate reduction, but careful débridement and immobilization are essential. When it is foreseen that a patient will be evacuated after a few days, the immobilization should be secured by means of plaster and not by traction. Plaster casts should be bivalved. The ventral half of the cast should be removed when the fracture is complicated by vascular injury. Accurate reduction can be secured at the time of reparative surgery.

It is important to bear in mind that clostridial myositis is associated with compound fractures even more commonly than with vascular injuries. Fracture patients must be kept under very close observation until the period during which such infections become apparent is past.

Wound Infection.—Adequate débridement and judicious use of antibiotics during initial treatment of casualties will minimize the incidence of wound infection. Infections which may occur will not become manifest until hours or days after the injury, when the bulk of the emergencies will have been treated and medical problems can be managed according to accepted principles without haste or confusion.

Tetanus Immunization: Clostridial infections warrant special mention because of their seriousness. The demonstration of the effectiveness of active immunization against tetanus by means of toxoid forms a brilliant chapter in the history of World War II and again in the present conflict in Korea. Unfortunately, immunization with tetanus toxoid is not universal among the civilian population. It will be impossible in the event of a major civilian catastrophe to determine the immunization status of the severely wounded. Consequently, it will be safest to treat all patients who incurred open wounds or severe contusions with prophylactic tetanus antitoxin (after the usual precautions regarding sensitivity) together with tetanus toxoid. The latter will serve as a booster dose in case the individual had been immunized with toxoid or as the initial dose for active immunization for those not previously immunized.

Prevention of Gas Gangrene: Clostridial myositis (gas gangrene) can be expected in any situation where mass casualties occur, for under such conditions débridement is likely to be delayed or inadequate. This infection can be fully developed as early as five hours after wounding, and the mortality is high. Early and thorough débridement is the best phophylaxis. The disease is not prevented by the use of antibiotics if the principles of wound management are violated. It has not been prevented by the prophylactic use of antitoxin. The disease has occurred in Korea despite adequate supplies of antibiotics, and Cutler and his associates [16] observed it among Air Force casualties treated prophylactically with penicillin. During World War II, the employment of sound surgical principles decreased the incidence of clostridial myositis from 65 early in the war to 1 per 10,000 casualties near the end of the war.

Patients who have incurred severe wounds should be kept under observation at the installation where initial surgery is done until the risk of life-endangering infection is over. In the case of clostridial myositis, most patients will have developed the disease within five or six days, if they are going to develop it at all. Plans should be made, therefore, to hold the severely wounded for about a week after initial surgery is done.

SUMMARY

The purpose of this report has been to emphasize two facts regarding mechanical injuries resulting from the explosion of an atomic bomb. First, the wounds are no different from those incurred in warfare or in civilian accidents, except that many will be complicated by burns and some by the effects of ionizing radiation. The principles of treatment are the same as those which crystallized during World War II and which are being demonstrated as sound in the present conflict in Korea. Second, the injuries occur in overwhelming numbers together with widespread destruction of facilities for medical care. Chaos can be avoided only if the casualties are managed according to a master plan which has stood the test of time. A chain of evacuation from the disaster area, as described in the first articles of this series, must be developed by industrial communities. Plans will vary from one community to the next, but all should aim at a design which will permit an orderly triage and evacuation of casualties from the target area to intact installations within the community and its suburbs. Those concerned with civilian defense must recognize that planning cannot be delayed. Time is required for plans to mature. There is no time for planning when a target area has been struck.

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[16] Cutler, E. C., and Sandusky, W. R.: Treatment of Clostridial Infections with Penicillin, Brit. J. Surg. (Supp.) 32: 168-176 (July) 1944. Cutler, E. C.; Morton, P. C., and Sandusky, W. R.: Observations on the Prophylactic Use of Penicillin in the Wounds of Aerial Warfare, ibid. (Supp.) 32: 207-211 (July) 1944.

Essentials of Anesthesia.—I am convinced that the majority of anesthetic deaths can be prevented, especially when one is dealing with patients who are relatively "good risks." . . . Three simple rules should be strictly adhered to except under conditions of dire emergency in an outlying country district. These are (1) a means of rhythmically inflating the patient's lungs with oxygen to be available; (2) a laryngoscope to be at hand and in full working order should it be necessary to inspect the air passages and if needs be to insert an endotracheal tube; (3) suction apparatus in full working order to be at hand to suck out the patient's mouth and other air passages should vomiting occur or should there be threatened aspiration of any other foreign material such as blood.—Norman R. James, M.D., The Teaching of Anesthesia, Especially in Relation to Safety and Resuscitation, *Medical Journal of Australia*, July 14, 1951.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

Narcotic drugs are often employed more or less routinely for preanesthetic medication without a full appreciation of their relative value for this purpose. The Council has authorized publication of the following report with the view of encouraging additional well-controlled and critical studies in this and related fields.

R. T. STORMONT, M.D., *Secretary.*

NARCOTICS IN PREANESTHETIC MEDICATION

A CONTROLLED STUDY

Ellis N. Cohen, M.D.
and
Henry K. Beecher, M.D., Boston

The use of a narcotic to support patients about to undergo anesthesia and surgery has a very long history; nonetheless, there are adequate reasons for examining the practice objectively. Such an examination begins logically with questions as to the purposes of the practice, its undesirable effects, and whether or not there are better ways to attain the desired results.

The beginning of this use of a narcotic was probably in 1850, when Lorenzo Bruno of Turin first mentioned the use of morphine as a hypnotic agent prior to the induction of anesthesia.[1] He used "the injection of morphine an hour before surgery . . to lessen psychic trauma." In 1869 Claude Bernard, working in Bruno's clinic, described how the injection into animals of small amounts of morphine one hour before the administration of chloroform reduced by half the quantity of chloroform necessary for deep anesthesia.[2] Since that time many others have described the advantages of morphine in preanesthetic medication. Some believed that use of this drug contributed significantly toward reducing the quantity of anesthetic agent required to attain a given plane of cyclopropane or of ether anesthesia.[3] However, other workers have reported that morphine used preanesthetically contributed little, or not at all, to a reduction of the amount of ether required for a given plane of anesthesia.[4] Since, in this country alone, millions of doses of narcotics are administered for preanesthetic medication each year, it is important to determine whether or not the practice is valid.

In recent times the recommended use of a narcotic in preanesthetic medication has been based, in several instances, upon careful observations. However, enthusiastic reports are generally derived from studies with animals having received very large doses of morphine in comparison with man. Moreover, with animals, the important subjective effects cannot be determined. When man is the experimental object, the favorable reports too often are based on few observations and frequently on clinical impression alone. Each new narcotic, often on the basis of little evidence, is accepted automatically as of value in preanesthetic medication. Hence, this is a legitimate field for inquiry on the part of the Council on Pharmacy and Chemistry.

The reasons offered for the use of a narcotic in preanesthetic medication fall into two principal categories.[5] First, it is desired to produce a desirable mental state in the patient, variously characterized as untroubled, serene, drowsy, and relaxed. There appear to have been no previous attempts to study these important subjective effects with and without morphine, or other agents administered in place of morphine. Second, there is the stated use of narcotics to reduce the quantity (blood-brain level) of anesthetic needed. These are legitimate aims. The first goal can be attained with narcotics. The purpose of this study was to ascertain if it could be accomplished as well, or better, with less hazardous agents. Concerning the second goal, no evidence has been found to prove conclusively that 15 mg. of morphine (¼ grain) reduces the blood levels of ether, or cyclopropane, or the quantity of thiopental sodium (pentothal sodium®) needed for surgery.

This paper presents evidence, then, which indicates that a narcotic is not essential in preanesthetic medication and that the attainable function of a narcotic in preanesthetic medication can be adequately performed by a barbiturate with fewer undesirable side-effects.

PROCEDURES

This work is based entirely on observations in man. Hospital patients were used as subjects, and they were divided into three equal groups to include approximately the same numbers o major and minor surgical procedures in comparable patients The 558 subjects were drawn in rotation from the daily schedul of operations.

No attempt was made to select patients for the experimen except to eliminate the extremes of age and weight and to ex clude patients with known contraindications to the drugs usec All anesthetics were administered by the anesthesia house sta which included both physicians and nurses in various degre of training, all under close supervision, and without knowled of what the premedication solution contained.

Three premedication solutions were prepared so that ea 2 cc. volume contained: (1) 15 mg. of morphine sulfate and 0 mg. of atropine sulfate, or (2) 90 mg. of pentobarbital sodiu and 0.6 mg. of atropine sulfate, or (3) 0.6 mg. of atropine sulfa A standard vehicle containing 8% ethyl alcohol, 70% pr pylene glycol, and water sufficient to make 100 cc. was us for premedication solutions, which were administered su cutaneously on the basis of 2 cc. of solution per 70 kilogra of body weight. *The contents of all solutions were unknown the patient, floor nurse, anesthetist, and examiner.* Code numb on solutions were changed on all wards at the end of each mon

A preanesthetic interview was carried out in the operat room during which the patient was asked a series of dir neutrally phrased questions in an attempt to evaluate sub tively his preanesthetic mental status while under the influc of the premedicating solution. These questions were prepa with the assistance of Dr. Jerome Bruner of the Departm of Social Relations of Harvard University: (1) Are you c fortable? (2) Are you worried? (3) Are you tense? (4) Are unusually happy? (5) Are you unusually sleepy? (6) Is y stomach upset? (7) Did you vomit?

The anesthetist recorded on a check list his own impress as to the patient's mental state; i. e., whether he was comforta worried, excited, happy, depressed, talkative, or nauseated the tables). As the anesthesia proceeded, the anesthetist recor the character of the induction and also his opinion as to whe or not a narcotic had been used in the premedicating solu (The use of eye signs in judging the presence or absence of

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From the Anesthesia Laboratory of the Harvard Medical School at the Massachusetts General Hospital, Boston.

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[1] Dogliotti, A. M.: Anesthesia, translated by C. S. Scuderi, Chicago, S. B. Debour Co., 1939, p. 20.

[2] Bernard, C.: Des effects physiologiques de la morphine et de leur combinaison avec ceux du chloroforme, Bull. gen de therap. medicale, chirurgicale, obstetricale, et pharmaceutique **77**: 241, 1869.

[3] Robbins, B. H.; Baxter, J. H., Jr., and Fitzhugh, O. G.: The Effects of Morphine, Barbital, and Amytal upon the Concentration of Cyclopropane in the Blood Required for Anesthesia and Respiratory Arrest, J. Pharmacol. Exper. Therap. **65**: 136 (Feb.) 1939. Seevers, M. H.; Meek, W. J.; Rovenstine, E., and Stiles, J. A.: A Study of Cyclopropane Anesthesia with Especial Reference to Gas Concentrations, Respiratory, and Electrocardiographic Changes, J. Pharmacol. & Exper. Therap. **51**: 1 (May) 1934. Turpeinen, E.: Etude sur la teneur en ether du sang chez l'homme pendant l'anesthésie générale combinée avec la scopolamine-morphine, Acta chir. scandinav., Supp. 87, 1, 1944.

[4] (*a*) Calderone, F. A.: Studies on Ether Dosage After Preanesthetic Medication with Narcotics (Barbiturates, Magnesium Sulfate, and Morphine), J. Pharmacol. & Exper. Therap. **55**: 24 (Sept.) 1935. (*b*) Potter, R.; Livingstone, H.; Andrews, E. and Light, G.: Blood Ether Levels in Surgical Anesthesia, Surgery **10**: 757 (Nov.) 1941.

[5] Many papers have been written expressing aims of preanesthetic medication with which the authors do not agree. A recurrent theme is the use of narcotics to "lower the metabolic rate" so that "anesthesia will be easier." No evidence is given indicating that the doses used do in fact lower the metabolic rate, nor is any evidence produced indicating that this would be a sound procedure.

phine was prohibited.) Approximately one hour after the induction of anesthesia, venous blood samples from the antecubital veins were drawn under mercury into heparinized syringes and analyzed for cyclopropane[6] or ether[7] content. In addition to the fact that the premedication would still be effective, evidence in support of this time of drawing the venous blood samples is contained in Table 12, in which it is shown that in 12 cases approximate equilibration of the inhalation anesthetic agents had occurred by that time (judging by the similarity of anesthetic levels in arterial and venous blood). When thiopental sodium was the sole anesthetic agent, the number of milligrams used per minute was averaged and recorded. On the first postoperative day, the patient was interviewed again and asked the same questions as in the preanesthetic period. In addition, the patient was asked to recall the details of his anesthetic experience and to express an opinion as to the pleasantness or unpleasantness of his induction.

RESULTS

Cases Studied.—The 558 cases studied were divided as follows: Nitrous oxide and ether, 353; cyclopropane, 100; thiopental sodium (pentothal sodium®) alone and with nitrous oxide, 105.

Time Interval Between Premedication and Induction of Anesthesia.—The average time from the subcutaneous injection of the premedicating solution until the start of induction of anesthesia was 61 minutes. As shown in Figure 1, the majority of patients fell within the 40 to 80 minute period, which implies that their premedication was already effective[8] at the time induction was started. The average time from the induction of anesthesia until the blood was drawn for gas analysis was 58 minutes, or an average of 119 minutes after the premedication solution had been given to the patient. Thus, the premedication drugs were still effective when the blood samples were drawn.

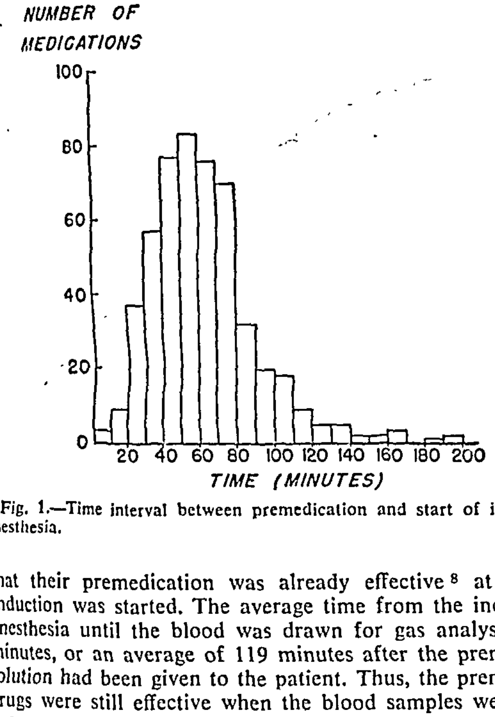

Fig. 1.—Time interval between premedication and start of induction of anesthesia.

Induction of Anesthesia.—The anesthetists were asked to characterize the nature of the induction. The results shown in Table 1 were obtained. From the anesthetist's point of view, the average induction of anesthesia was not influenced by the addition of either morphine or pentobarbital to the premedicating solution.

Time Required for Insertion of Endotracheal Tube.—An endotracheal tube was inserted as soon as relaxation of the jaw was sufficient. This provided a point at which to mark the onset of muscular relaxation and the completion of the induction period. The average time required for insertion of the endotracheal tube in 230 cases is shown in Table 2.

These figures show that the addition of morphine or pentobarbital to the premedicating solutions does not expedite the induction of anesthesia, as indicated by the attainment of a sufficient degree of muscular relaxation for the insertion of an endotracheal tube.

Anesthetist's Opinion of the Premedicating Solution Used.—The anesthetists were asked to evaluate the over-all adequacy of the premedication used and to express an opinion as to whether or not they thought a narcotic had been present in a given case. This last opinion was expressed independently of the characteristic eye signs of morphine medication. The errors of the guesses shown in Table 3 are such as to indicate that the anesthetists followed the instructions.

The data of Table 3 also suggest that the anesthetists were satisfied almost equally with all premedication solutions used, including atropine alone. In addition, 47% of the time the anesthetists were unaware of the presence of morphine when it had been used in the premedicating solution. There was an equal tendency to confuse the presence of pentobarbital with that of morphine. Moreover, the anesthetists mistakenly thought 34% of the atropine control group had been premedicated with morphine.

TABLE 1.—*Anesthetists' Characterization of Induction With Respect to Premedication Agents*

Premedication Agents	Smooth, %	Smooth, Slow, %	Difficult, %	Stormy, %
Morphine + atropine (184 cases)....	69	11	14	6
Pentobarbital + atropine (182 cases)	67	17	11	5
Atropine alone (192 cases)...........	64	15	18	3

TABLE 2.—*Time Required to Insert an Endotracheal Tube*

Premedication Agents	Time, Min.
Morphine + atropine (72 cases)................................	18.3
Pentobarbital + atropine (73 cases)............................	18.2
Atropine alone (85 cases)......................................	17.5

Patient's Preanesthetic Physical and Mental Status.—After receiving a premedication solution, the patient was evaluated in his preanesthetic stage according to the following three categories. First, objective physical findings were recorded from examination of the patient: respiratory rate, pulse rate, and blood pressure. Second, a series of simple direct questions was asked the patient (see above and Table 5) to which he responded "yes" or "no." Third, the anesthetist recorded his impressions as to any apprehension, excitement, or euphoria manifested by the patient during his preparation for induction, regardless of his response to direct questioning (Table 5).

TABLE 3.—*Anesthetists' Estimates as to Adequacy of the Premedication and Whether It Included a Narcotic*

Premedication Agents	Adequate %	Inadequate %	Excessive %	Narcotic Probably Used %
Morphine + atropine (184 cases).....	72	27	1	53
Pentobarbital + atropine (182 cases)	72	26	2	46
Atropine alone (192 cases)...........	66	33	1	34

TABLE 4.—*Preanesthetic Physical Data*

Premedication Agents	Respiratory Rate	Pulse Rate	Blood Pressure
Morphine + atropine (184 cases).........	19.0	81	125/74
Pentobarbital + atropine (182 cases)....	19.0	84	126/74
Atropine alone (192 cases)................	19.6	85	127/83

The physical signs were recorded by the anesthetist before anesthesia was started (Table 4).

It appeared that the patient himself thought that morphine was slightly more effective (6%), in comparison with atropine alone, for reducing the amount of preoperative excitement and also for producing a sleepy state preanesthetically. In fact, a chi square analysis shows significance at the 0.05 level. Likewise,

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6. Orcutt, F. S., and Waters, R. M.: Method for Determination of Cyclopropane, Ethylene, and Nitrous Oxide in Blood with Van Slyke-Neill Manometric Apparatus, J. Biol. Chem. **117**: 509 (Feb.) 1937.

7. Andrews, E.; Potter, R. M.; Friedemann, T. E., and Livingstone, H. M.: Determination of Ethyl Ether in Blood, J. Lab. & Clin. Med. **25**: 966 (June) 1940.

8. Subcommittee on Anesthesia, National Research Council: Fundamentals of Anesthesia, Chicago, A. M. A. Press, 1944, p. 34.

there seemed to be a little less excitement under morphine than under the barbiturate, judging by the patients' statements; but this was not evident to the anesthetist (See last half of Table 5).

Patient's Postanesthetic Recall.—On his first postoperative day, the patient was asked the same series of questions that had been asked immediately before the induction of anesthesia. In addition, a check list was used to record details of both spontaneous and suggested recall of the patient's anesthetic experience from the time the premedicating solution was injected until the actual induction of anesthesia. The results of questioning postoperative patients are shown in Table 6.

There appears to be little difference in the power of the premedicating solutions used to prepare the patient for his anesthetic experience, judging by his recall. It can be observed from the data of Table 6 that postanesthetic patients were somewhat slower to recall the discomfort experienced during their preanesthetic phase than before induction; however, no significant differences are shown between the morphine, pentobarbital, or control group.

There also appears to be no differentiation in the patient's ability to recall details (both spontaneous and suggested) of his preanesthetic experience while under the influence of the three premedicating solutions. The patients were asked: "What do you remember happening to you in the hour or so just before your operation?" They were questioned regarding the hypodermic injection, the trip to the operating room, the placement of the mask or the needle for injection, and the movement from bed to the operating table. A score of 4 equals a 100% recall of the detail check list. Patients given morphine plus atropine got a score of 3.1, those given pentobarbital plus atropine, a score of 2.9, and those given atropine alone, a score of 3.2.

TABLE 5.—*Preanesthetic State: Patients' Answers to Direct Questions*

Premedication Agents	Discomfort, %	Apprehension, %	Excitement, %	Euphoria, %	Sleepiness, %	Nausea,
Morphine + atropine	5	32	27	7	17	3
Pentobarbital + atropine	4	35	34	7	15	4
Atropine alone	5	36	33	6	10	6

Anesthetists' Impressions as to Patients' State

Premedication Agents	Discomfort, %	Apprehension, %	Excitement, %	Euphoria, %	Depression (Sleepiness), %	Nausea, %	Talkati ness, %
Morphine + atropine	9	57	16	5	10	1	22
Pentobarbital + atropine	5	55	16	4	10	1	21
Atropine alone	10	62	21	3	8	2	20

TABLE 6.—*Patients' Estimates of Their Preoperative State on the First Postoperative Day*

Premedication Agents	Discomfort, %	Apprehension, %	Excitement, %	Euphoria, %	Sleepiness, %	Nausea, %	Talkati ness, %
Morphine + atropine	3	30	42	24	46	8	26
Pentobarbital + atropine	2	31	31	24	46	10	21
Atropine alone	3	34	41	20	40	9	16

The patients were also questioned on their first postoperative day as to the pleasantness or unpleasantness of the anesthetic induction. Their reactions are summarized in Table 7. Apparently, the patients were equally satisfied with all premedicating solutions used.

TABLE 7.—*Postoperative Memory of the Induction with Respect to Premedication Agents*

	Pleasant Induction, %	Unpleasant Induction, %	Indifferent Induction, %
Morphine + atropine	73	5	22
Pentobarbital + atropine	70	3	27
Atropine alone	73	7	20

Blood Anesthetic Levels.—Venous blood levels for ether were determined [7] in 101 patients and venous cyclopropane levels determined [6] in 76 patients. These blood samples were drawn approximately one hour (mean time=58 minutes) after the in duction of anesthesia. No attempt was made to draw them dur ing a particularly defined plane of anesthesia, except to be certain that all patients were in a surgical level of anesthesia. Thiopenta sodium in terms of milligrams of drug used per minute of anesthesia was calculated in 52 of the 54 [9] cases in which this dru was the sole anesthetic agent. The results are shown in Table

TABLE 8.—*Blood Levels of Anesthetic Agents One Hour After Induction of Anesthesia*

Premedication	Cyclopropane, Mg./100 Cc. (76 Cases)	Ether, Mg./100 Cc. (101 Cases)	Thiopental Sodium, Mg. Used/Mi (52 Cases)
Morphine + atropine	13.2 (25 cases)	103.1 (37 cases)	30.6 (17 cases)
Pentobarbital + atropine	13.9 (27 cases)	100.8 (28 cases)	31.7 (19 cases)
Atropine alone	13.6 (24 cases)	95.9 (36 cases)	31.3 (16 cases)

From these data, there does not appear to be a significa reduction in the blood levels of either cyclopropane or eth required for surgery when the various premedicating solutio are used. A "t" test for both cyclopropane and ether levels do not show a significant variation with the three premedicat solutions used. These results are in accord with the findings Calderone [4a] and of Potter and co-workers,[4b] and in disagr ment with other reported work in animals and in man.[3] Althou there was an apparent reduction in the amount of thiopen sodium required per minute when morphine was used for p medication, as compared to the control solution of atrop alone, this difference is not significant on a statistical le ($p = < 0.5$ and > 0.4). If a difference cannot be shown in d based upon 52 patients, any one person's clinical acumen wo not be great enough to detect it in a given case.

The venous blood levels obtained for the ether cases var from 57 to 160 mg. per 100 cc. These values are within norn reported ranges for the various planes of surgical anesthe Interestingly enough, the distribution of anesthetic levels (Fig. is almost in complete agreement with the results reported Potter and co-workers [4b] in which "all blood samples were dra at the second plane of the third stage after careful selection . . . one of three experienced anesthetists." Judging by t wide scatter of blood levels when Potter and co-workers thou that they were taking their blood samples at a constant level anesthesia, it is very difficult to define planes of anesthesia clinical judgment alone. (It is assumed that the venous blo reflects the concentration in the brain.) Accordingly, all samp were taken one hour after induction without using any furt criteria of depth of anesthesia. The types of cases were balanced in the three groups studied.

---

[9] In two patients some thiopental sodium was lost through a leaky connection; therefore, these cases were not included in the average.

Figure 3 shows the range of values obtained from the venous cyclopropane blood samples. They vary from 7 to 23 mg. per 100 cc. Again, these are in accord with other reported figures for surgical levels of cyclopropane anesthesia.[3a, b]

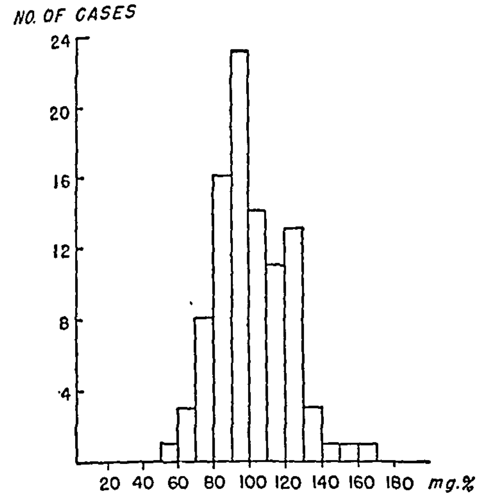


Fig. 2.—Venous blood ether levels.

Breakdown of Results by Anesthetic Agents.—A breakdown of the several categories of premedicating drugs was also made (Table 9) in terms of the individual anesthetic agents used (Cf. Table 1). The anesthetists expressed their opinion of the adequacy of the premedicating solutions as shown in Table 10 (Cf. Table 3).

When questioned on their first postoperative day, the patients expressed opinions as to their anesthetic inductions as shown in Table 11 (Cf. Table 7). The results of this tabulation reveal that, when utilizing a given anesthetic agent, there is little difference in response to the various drugs used for premedication. The patient's response to the various anesthetic agents, however, did vary (Table 11). For example, while an average of 64% of the patients were pleased with a gas-oxygen-ether induction, 70% were pleased with cyclopropane, and 92% were pleased when induction was made with thiopental sodium. This is in accord with clinical impression.

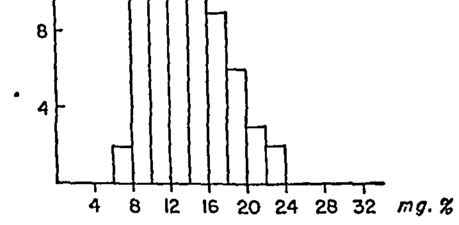


Fig. 3.—Venous blood cyclopropane levels.

Effects of the Premedicating Drugs on Oxygen Saturation and Carbon Dioxide Tension.—Twelve cases were selected at random in the cyclopropane and ether group and studied to evaluate any effects of the premedicating solutions on arterial oxygen saturation[10] or carbon dioxide tension.[11] Any depression of respiration would be shown by an elevated tension of carbon dioxide. In addition, simultaneous venous and arterial blood samples were drawn approximately 60 minutes after the induction of anesthesia in order to study the distribution of the anesthetic agent between the venous and arterial circulation. An attempt was made to maintain the plane of anesthesia as steady as possible while the blood was being drawn (Table 12).

Both oxygen saturation and tension of carbon dioxide were within normal ranges for the cases studied. Normality of the blood gases was so well preserved in the 12 patients, it seemed needless to carry this part of the work further. It was also apparent that, at the end of one hour's anesthesia, approximate equilibrium was established for the anesthetic gases between arterial and venous blood. Thus, the venous samples drawn one hour after induction should give a satisfactory indication as to the patient's plane of surgical anesthesia when averaged for rather large numbers.

TABLE 9.—*Anesthetists' Characterization of Induction**

Premedication and Anesthetic	Smooth Induction, %	Smooth, but Slow Induction, %	Difficult Induction, %	Stormy Induction, %
Morphine + atropine				
Ether and nitrous oxide.....	57	13	21	9
Cyclopropane	86	8	3	3
Thiopental	93	7	0	0
Pentobarbital + atropine				
Ether and nitrous oxide.....	57	23	14	6
Cyclopropane	91	0	6	3
Thiopental	79	15	6	0
Atropine alone				
Ether and nitrous oxide.....	55	19	22	4
Cyclopropane	71	10	16	3
Thiopental	89	5	3	3

* With respect to anesthetic agents (cf. Table 1).

TABLE 10.—*Anesthetists' Estimates as to Adequacy of the Premedication and Whether a Narcotic Was Used**

Premedication and Anesthetic	Adequate, %	Inadequate, %	Excessive, %	Narcotic Probably Used, %
Morphine + atropine				
Ether and nitrous oxide.....	63	37	0	53
Cyclopropane	88	9	3	57
Thiopental	90	10	0	52
Pentobarbital + atropine				
Ether and nitrous oxide.....	66	32	2	47
Cyclopropane	88	12	0	44
Thiopental	82	18	0	49
Atropine alone				
Ether and nitrous oxide.....	59	41	0	38
Cyclopropane	74	23	3	19
Thiopental	82	16	2	34

* With respect to anesthetic agents (cf. Table 3).

TABLE 11.—*Postoperative Memory of the Induction**

Premedication and Anesthetic	Pleasant Induction, %	Unpleasant Induction, %	Indifferent Induction, %
Morphine + atropine			
Ether and nitrous oxide..........	64	8	28
Cyclopropane	76	3	21
Thiopental	93	0	7
Pentobarbital + atropine			
Ether and nitrous oxide..........	63	5	32
Cyclopropane	57	0	43
Thiopental	93	0	7
Atropine alone			
Ether and nitrous oxide	66	9	25
Cyclopropane	77	7	16
Thiopental	89	3	8

* With respect to anesthetic agents (cf. Table 7).

---

[10] Van Slyke, D. D., and Neill, J. M.: Determination of Gases in Blood and Other Solutions by Vacuum Extraction and Manometric Measurements, J. Biol. Chem. 61: 523 (Sept.) 1924. Austin, J. H.: Estimation of Carbon Dioxide in Serum in Presence of Ether by Van Slyke Method, J. Biol. Chem. 61: 345 (Sept.) 1924.

[11] Hastings, A. B., and Sendroy, J., Jr.: Studies of Acidosis: Colorimetric Determination of Blood pH at Body Temperature Without Buffer Standards, J. Biol. Chem. 61: 695 (Oct.) 1924.

COMMENT

As shown in Table 3, the anesthetists evaluated the preanesthetic medication as adequate more often when morphine or pentobarbital was used than when atropine alone was used; but there was no difference between morphine and pentobarbital for the purpose.

In Table 5, first part, although no important difference among any of the three preanesthetic solutions emerges, there was possibly a little less excitement when morphine was used. This difference is at the 5% level of significance. In the last part of Table 5, it is evident that the anesthetists could not detect any difference in excitement between the instances in which morphine and pentobarbital were used. In this same section of Table 5, one can find evidence which indicates that the patients impressed the anesthetists as being somewhat more apprehensive when atropine alone was used than when the other two agents were employed; but here again there was no difference between morphine and pentobarbital.

Table 9 contains evidence showing that the induction of inhalation anesthesia was a little smoother when morphine or pentobarbital sodium was used than when atropine alone was employed in the premedication. The evidence is only suggestive for ether; it is stronger for cyclopropane. Difficult induction was more common under cyclopropane unless morphine or pentobarbital sodium was used. There was no appreciable difference here between morphine and pentobarbital sodium.

TABLE 12.—*Blood Gases Under Ether and Under Cyclopropane**

	Case No.	Arterial Cyclo., Mg./100 Cc.	Venous Cyclo., Mg./100 Cc.	Oxygen Content, Vol. %	Oxygen Capacity, Vol. %	Oxygen, % Sat.	pH	Carbon Dioxide Content, mEq./L.	Carbo Dioxi Tensio Mm.
Morphine + atropine	1	12.1	11.4	17.0	17.4	98	7.30	22.3	47.5
	2	10.9	10.7	20.2	20.0	100	....	....	....
Pentobarbital + atropine	3	11.6	8.5	16.1	15.4	100	7.35	22.4	47.0
	4	16.7	14.9	18.9	18.6	100	....	....	....
Atropine alone	5	17.7	17.4	17.8	16.4	100	7.45	25.2	37.2
	6	12.2	10.8	16.1	15.6	100	....	....	....

	Case No.	Arterial Ether, Mg./100 Cc.	Venous Ether, Mg./100 Cc.	Oxygen Content, Vol. %	Oxygen Capacity, Vol. %	Oxygen, % Sat.	pH	Carbon Dioxide Content, mEq./L.	Carb Dioxi Tensi Mm.
Morphine + atropine	7	84.0	78.0	17.2	17.0	100	7.44	25.5	38.
	8	66.0	53.0	18.1	16.5	100	....	....	....
Pentobarbital + atropine	9	139.0	130.0	22.2	19.9	100	7.43	26.4	40.
	10	85.0	77.0	19.5	18.6	100	....	....	....
Atropine alone	11	80.0	85.0	16.7	16.9	99	7.40	24.4	40.
	12	83.0	79.5	16.6	17.0	98	....	....	....

---

* With respect to the premedication agents.

From the present study it is evident that pentobarbital sodium is an effective and satisfactory substitute for morphine in preanesthetic medication. Both morphine and pentobarbital contributed only a little to the improvement of the patient's preanesthetic mental state (insofar as it could be measured) and the induction of anesthesia. Both agents produce euphoria. This is a desirable result but one difficult to measure exactly. In other work in progress in the Anesthesia Laboratory of the Harvard Medical School, impressive euphoria has been produced by parenteral injection (as in the studies reported here) of pentobarbital. Presumably, the euphoria produced by the same dose of this agent is greater when administered parenterally than when it is given by mouth. This may be explained by its more rapid absorption when injected. Neither morphine nor pentobarbital contributed to reducing the actual blood levels of the anesthetic agents required to maintain surgical anesthesia. This does not imply, however, that morphine is to be discarded entirely in preanesthetic medication. Rather, its use or that of other powerful narcotics should be restricted to providing analgesia. Patients in preoperative pain should receive an analgesic agent in preanesthetic medication, but few patients coming to surgery have pain severe enough to require a narcotic.

SUMMARY AND CONCLUSIONS

1. A controlled study of preanesthetic medication was made in 558 patients undergoing anesthesia with ether, cyclopropane, or thiopental sodium. The drugs used for premedication included morphine sulfate and atropine, pentobarbital sodium and atropine, and atropine alone. These agents were all administered as "unknowns" and their effects characterized without knowledge of which one had been given.

2. Preanesthetic interviews with the patient, after administration of the drugs, an appraisal by the anesthetist, and a postanesthetic interview indicate few differences in the effectivenes of the premedicating drugs studied.

3. Smoothness of induction of anesthesia, muscular relaxation as measured by the time for insertion of an endotrache tube, depth of anesthesia as indicated by venous blood levels cyclopropane and of ether, and observations of milligrams thiopental sodium required per minute all show no importa and few significant differences with the three premedicati solutions tested.

4. Blood oxygen saturation and carbon dioxide eliminati were satisfactory in the cases studied.

5. On principle, it is desirable to reduce the use of narcoti whenever possible. As a further principle, morphine and simil agents should not be used because of their power to produ euphoria, except in conjunction with the treatment of seve pain or in patients who are dying, as with terminal cancer.

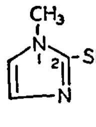
6. Unless pain is present, there is no need for a narcotic preanesthetic medication. Its function can be adequately filled by a small dose (90 mg.) of pentobarbital sodium. latter agent has fewer hazards associated with it than have commonly used narcotics.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as forming to the rules of the Council on Pharmacy and Chem of the American Medical Association for admission to New Nonofficial Remedies. A copy of the rules on which the Co bases its action will be sent on application.

R. T. STORMONT, M.D., *Secreta*

Methimazole.—Tapazole (Lilly).—1-Methyl-2-mercaptoi zole.—$C_4H_6N_2S$.—M.W. 114.17.—The structural formul methimazole may be represented as follows:



Actions and Uses.—Methimazole is similar in indication uses to propylthiouracil, but it is perhaps twenty times as p The side-effects are also similar to those of propylthiou nd have included skin rashes, urticaria, joint pains, and granulocytosis.

Dosage.—Initially, 5 to 10 mg. should be given three times a ay. After the hyperthyroidism is controlled, which may re-uire 30 to 60 days, a maintenance dose of 5 to 10 mg. daily ay be expected to keep the disease under control. While pro-acted treatment may finally extinguish the disease, the pre-rred course at present is to perform a thyroidectomy as soon the disease is controlled.

ests and Standards.—

Physical Properties: Methimazole is a white to buff, crystalline powder hich has almost no taste and a very faint odor. It melts between 145 and 8 C. One gram dissolves in about 4.5 ml. of water, in about 5.0 ml. of cohol, in about 4.4 ml. of chloroform, and in about 125 ml. of ether. A solution has a pH between 6.7 and 6.85.

Identity Tests: Dissolve about 50 mg. of methimazole in 5 ml. of water d slowly add an excess of iodine T.S. to the solution: at first the iodine lor is removed and upon continued addition a brown precipitate forms at finally turns brownish black.

A 0.0003% solution of methimazole, prepared as directed in the spectro-otometric assay, exhibits an ultraviolet absorption maximum at about 520 Å [E(1%, 1 cm.), about 1,357] with a minimum at about 2,200 Å.

Purity Tests: Dry about 2 gm. of methimazole, accurately weighed, in vacuum for 24 hours over phosphorus pentoxide: the loss in weight is t more than 0.5%.

Char about 0.5 gm. of methimazole, accurately weighed, over a low me. Cool the charred mass, then add 1 ml. of sulfuric acid and con-ue ignition until no carbon remains: the amount of residue present is t more than 0.1%.

Assay: (Methimazole) Transfer about 30 mg. of methimazole, accurately ighed, to a 1,000 ml. volumetric flask, fill to the mark with water and x thoroughly. Transfer exactly 10 ml. of the solution to a 100 ml. lumetric flask, fill to volume with water and again mix thoroughly. termine the absorbancy of the final solution (0.0003%) at 2,520 Å with spectrophotometer. The number of milligrams of methimazole present milliliter of the final solution = absorbancy ÷ 135.7. The amount of thimazole present is not less than 96.5 nor more than 102.5%.

Nitrogen) Transfer to a semi-micro Kjeldahl flask about 0.15 gm. of thimazole. Digest it for 4 hours with 7 ml. of sulfuric acid, 2.7 gm. of assium sulfate and 0.3 gm. of mercuric oxide. Cool the contents of flask and carefully add 15 ml. of water. Make the solution alkaline h 40% sodium hydroxide and then add 10 ml. of 40% sodium thio-fate. Distil the ammonia into 20 ml. of 4% boric acid. Using a mixed icator (1:5 methyl red T.S. and bromocresol green T.S.), titrate the monia liberated with 0.1 *N* sulfuric acid. Each milliliter of 0.1 *N* acid quivalent to 0.001401 gm. of nitrogen and 0.005708 gm. of methimazole. amount of nitrogen present is not less than 24.0 nor more than 24.8% ivalent to not less than 98.0 nor more than 101.0% of methimazole.

sage Forms of Methimazole

ABLETS. *Identity Tests:* Powder enough tablets to give about 50 mg. methimazole and add the powder to about 10 ml. of water. Mix roughly and filter the mixture. The filtrate responds to the identity tests ed in the monograph for Methimazole.

Assay: (Methimazole) Powder about 20 tablets and transfer to a 1,000 volumetric flask an amount, accurately weighed, equivalent to 30 mg. methimazole. Mix thoroughly and filter a portion of the solution, dis-ding the first 25 ml., and then transfer exactly 10 ml. of the subse-nt filtrate to a 100 ml. volumetric flask. Fill to the mark with water d determine the absorbancy of this solution at 2,520 Å with a spectro-otometer. The number of milligrams of methimazole present per milli-r of the final solution = optical density at 2,520 Å ÷ 135.7. The ount of methimazole present is not less than 95.0 nor more than .0% of the labeled amount.

Tablets Tapazole: 5 mg. Eli Lilly & Company, Indianapolis.

d Liver Oil Concentrate (Liquid) (See New and Nonofficial medies 1951, p. 465).

Capsules Cod Liver Oil Concentrate with added Vitamin D_3: ch capsule has a potency of not less than 12,500 U.S.P. units Vitamin A and of not less than 1,250 U.S.P. units of Vitamin White Laboratories, Inc., Kenilworth, N. J.

Liquid Cod Liver Oil Concentrate with added Vitamin D_3: cc., 30 cc., and 60 cc. vials. Packaged with an accompanying opper designed to supply in each two drops not less than 3,000 S.P. units of Vitamin A and not less than 600 U.S.P. units of itamin D. White Laboratories, Inc., Kenilworth, N. J.

arbol-Fuchsin Paint (See New and Nonofficial Remedies 1951, 57).

Carbol-Fuchsin Paint: 30 cc., 60 cc., 120 cc., and 480 cc. ottles. A solution of 1% boric acid, 4.5% phenol, 10% re-orcinol, 0.3% fuchsin, 5% acetone, and 10% alcohol in water, s. The Veltex Company, Birmingham, Ala.

Acet-Dia-Mer-Sulfonamides (See THE JOURNAL, Oct. 20, 1951, p. 759).

Tablets Incorposul: 0.5 gm. Each tablet contains 0.167 gm. each of sulfacetamide, sulfadiazine, and sulfamerazine. The Blue Line Chemical Company, St. Louis.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

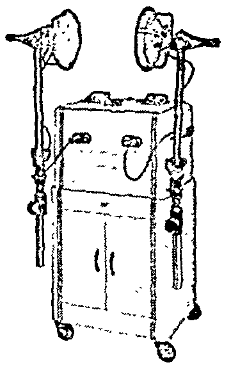
RALPH E. DE FOREST, M.D., *Secretary.*

LIEBEL-FLARSHEIM SHORT-WAVE DIATHERMY, MODEL SW-660, ACCEPTED

Manufacturer: The Liebel-Flarsheim Company, 303 W. Third St., Cincinnati 2.

The Liebel-Flarsheim Short-Wave Diathermy, Model SW-660, is an apparatus generating radio frequency energy at 27.12 megacycles for medical application. The housing of the generating equipment sits upon a cabinet which can be moved about on the floor on casters. Together, the two parts stand about 103 cm. in height (40¾ in.) and weigh 76 kg. (168 lb.). They are crated separately. The total shipping weight is 100 kg. (220 lb.). The shipping weight includes 2 air-spaced plates, 1 hinged drum, and 2 adjustable arms. For operation the apparatus requires a 60-cycle alternating current at 120 volts, and it draws 1,000 watts. (The Federal Communications Commission's Type Approval Number is D-539.)

The manufacturer uses a novel method of frequency control—a coaxial line oscillator, popularly referred to as a "cavity." The power output is controlled by a single control-knob, greatly simplifying the operation of the apparatus. The unit is equipped with a synchronous motor-driven timer, which may be used or not used at the discretion of the operator.


Liebel-Flarsheim Short-Wave Diathermy, Model SW-660.

In a laboratory acceptable to the Council, evidence was obtained that the apparatus performed as represented by the manufacturer. The unit has an output of 445 watts using air-spaced plates and 395 watts with the hinged drum. The Council on Physical Medicine and Rehabilitation voted to include the Liebel-Flarsheim Short-Wave Diathermy, Model SW-660, in its list of accepted devices.

ROCHESTER HEARING AID, MODEL R-1, ACCEPTED

Manufacturer: Rochester Acoustical Laboratories, Inc., 117 Fourth St., S. W., Rochester, Minn.

The Rochester Hearing Aid, Model R-1, is an electric instrument of conventional design. Without latch, knobs and clothing clip it measures 79 by 54 by 20 mm. The transmitter unit alone without batteries weighs 110.5 gm. With batteries it weighs 148 gm., and the receiver and cord add 11 gm.

Evidence of satisfactory construction and performance was obtained from sources acceptable to the Council. The Council on Physical Medicine and Rehabilitation voted to include the Rochester Hearing Aid, Model R-1, in its list of accepted devices.

Rochester Hearing Aid, Model R-1.

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TRANSPOSITION OF AORTA AND PULMONARY ARTERY

Transposition of the great vessels, according to Harris and Farber,[1] has attracted attention as the most interesting and puzzling of congenital cardiac malformations. Defects such as persistent foramen ovale, ductus arteriosus, and abnormal aortic arches may be considered as mere developmental defects, or as evidences of the persistence of certain stages in embryonic development. In transposition, however, a radical departure from normal development has apparently taken place.

Abbott[2] defines transposition as an alteration in the position of the two great vessels relative to the ventricles of the heart, or to each other at their origin, so that they spring either from reversed ventricles, the aorta from the right, and the pulmonary artery from the left chamber (complete transposition), or from the ventricle to which they normally belong, but in reversed relationship (corrected transposition).

Of the many attempts to explain this anomaly the phylogenetic theory of Spitzer appears to be the most acceptable. It is based on the fundamental postulate of the orderly development of the organ, as a unit, in response to various conditions, forces and demands in a series rising from fish to birds and mammals.

In complete transposition the aorta arises from the ventricle receiving systemic venous blood and the pulmonary artery arises from the ventricle receiving oxygenated blood. Blood that is pumped by the left ventricle through the pulmonary artery to the lungs returns by the pulmonary veins and left auricle to its point of origin in the left ventricle. Blood that is propelled by the right ventricle through the aorta to the body is returned by the systemic veins and the right auricle to its starting point in the right ventricle. Thus, Blalock and Hanlon[3] point out, the systemic and pulmonary circulations are basically separate. A condition of this type is not compatible with life. However, there is generally some degree of communication between the two circulations by way of septal defects or other abnormalities. These abnormal communications allow some oxygenated blood to be shunted into systemic circulation, and some venous blood is similarly transferred to the pulmonary circulation. In the 123 cases collected by Hanlon and Blalock,[4] duration of life was 19 months. However, six of these patients lived 10 years or longer; if these are excluded, the average duration of life for 117 patients is only five and one-half months. These authors stress that in complete transposition an interventricular septal defect is the single compensating abnormality associated with the longest life expectancy. A patent interatrial septum is the next most favorable isolated defect, and the combination of these two gives the best prognosis of all.

Taussig[5] made clinical recognition of transposition of the great vessels possible by her description of clinical features. The fluoroscopic signs are very important. They show a narrow aortic shadow in the anterior-posterior position and a wide aortic shadow in the left anterior-oblique position, combined with enlargement of both ventricles and the absence of fulness of the normal pulmonary conus of the right ventricle. The condition leads to progressive cardiac enlargement and death during infancy. Occasionally a balance is established; it may then be compatible with life for a number of years. These children are greatly incapacitated and frequently squat when tired. They suffer from severe anoxia, and early and severe polycythemia and clubbing develop. A systolic murmur and gallop rhythm are common. There is slight cardiac enlargement and absence of fulness of the pulmonary conus. The physical markings extend nearly to the periphery of the lung fields; there are many discrete circulation shadows in the hilar region. Campbell and Suzman[6] emphasize a loud and booming pulmonary second sound as the most important physical sign. They consider as suggestive the following features in the lung fields: (1) the general mottling and increased density (2) dilatation of the pulmonary arteries and of thei main branches, and (3) expansile pulsation. The prognosis, according to them, is generally bad, the patient dying in the first few months. If, however, the septa defects are large enough for adequate mixing of the circulation of both sides of the heart, so that the child survives infancy, there is no reason why it should not survive much longer. They report on 25 children selected among 400 children with cyanotic congenital heart disease, a: having a transposition of the great vessels. The selection was made on the appearance of the lung fields on radioscopy and teleradiography and expansile pulsation of the pulmonary branches. Six of the children had cardiac catheterization and five of the six and two others had angiocardiography.

Blalock and Hanlon[3] attempted correction of this anomaly in 33 patients, all of them with preoperative diagnosis by Helen Taussig. Three types of operation were attempted: (1) some type of extracardiac venou or arterial shunt, (2) creation of an auricular septa defect, and (3) combination of these two methods. Th combined procedure offered the greatest likelihood o improvement. In the first 28 patients operated on, ther were 22 deaths. This exceedingly high mortality, the authors feel, was attributable to the precarious condition of the patients, to the use of procedures now considered unsound, or to technical errors. In 12 patients treated by the creation of an auricular septal defect and an anastomosis between the right subclavian and pulmonary arteries, eight are living with various degrees of improvement. A true anatomic correction of the defects has not been feasible so far.

---

[1] Harris, J. S., and Farber, S.: Transposition of the Great Cardiac Vessels: With Special Reference to the Phylogenetic Theory of Spitzer, Arch. Path. **28**: 427 (Oct.) 1939.

[2] Abbott, M. E., in Osler, W.: Modern Medicine, edited by T. McCrae, Philadelphia, Lea & Febiger, 1927

[3] Blalock, A., and Hanlon, C. R.: Surgical Treatment of Complete Transposition of the Aorta and the Pulmonary Artery, Surg., Gynec., & Obst. **90**: 1 (Jan.) 1950.

[4] Hanlon, C. R., and Blalock, A.: Complete Transposition of the Aorta and the Pulmonary Artery: Experimental Observations on Venous Shunts as Corrective Procedures, Ann. Surg. **127**: 385-397 (March) 1948.

[5] Taussig, H. B., Congenital Malformations of the Heart, New York, The Commonwealth Fund, 1947, in Blalock and Hanlon.[3]

[6] Campbell, M. and Suzman, S.: Transposition of the Aorta and Pulmonary Artery,' Circulation **4**: 329 (Sept.) 1951.

GENERAL PRACTITIONER'S AWARD

In recognition of nearly 50 years of exceptional service to his patients and to medicine, Dr. A. C. Yoder, of Goshen, Ind., was awarded the fifth annual general practitioner's gold medal and named "general practitioner of the year" by the House of Delegates of the American Medical Association at the Los Angeles clinical session. The winner of this award is selected each year from a list of three names submitted to the House of Delegates by the Board of Trustees, who in turn receive nominations from each of the state and territorial medical societies. Others who figured in this year's final voting were Dr. Everett Beam Lattimore, of Shelby, N. C., and Dr. Clayton Willison, of Sault Ste. Marie, Mich.

Albert C. Yoder, M.D.

Dr. Yoder was born in La Grange County, Ind., in 1867. Starting his career as a schoolteacher, he served as high school principal for six years before attending medical school. After receiving a medical degree from Rush Medical College, Chicago, in 1902 he located in Goshen and has practiced there since that time. Answering calls first by bicycle, next by horse and buggy, and finally by car, Dr. Yoder has always given his best efforts to his patients. In the midst of a busy practice he has found time to participate in many civic programs. He was city health officer of Goshen for eight years. He has been active in his county medical society, serving as president on two occasions and as delegate to the Indiana State Medical Association for 35 years. Today, at an age when most men would have retired, Dr. Yoder sees patients in his office six days a week and maintains an active interest in current scientific advances in medicine. When told he had been selected as Indiana's nominee for the national honor, he said that he looked forward to many more years of service to the people of Goshen. Dr. Yoder was flown from his home to Los Angeles for the presentation of the gold medal award before the House of Delegates on December 6.

TUMORS IN FOOD-PRODUCING ANIMALS

While the common laboratory animals have been widely used in experimental cancer research, little attention has been paid to the research opportunities offered by the tumors of the larger food-bearing animals. Information concerning the prevalence and types of tumors present in these animals and the contributions that study of these tumors might make to an understanding of the etiology of cancer has recently been presented by Dr. Paul E. Steiner, pathologist at the University of Chicago, and Dr. John S. Bengston, veterinarian with the pathological division of the Bureau of Animal Industry.[1] On the basis of figures obtained from the meat inspection division of the Bureau of Animal Industry, together with an allowance for animals slaughtered by nonfederal inspected butchers and packers, these authors estimate that during 1949 some 152,856 food-producing animals marketed in the United States had tumors. They emphasized that this figure probably represents only about half the national total, since it does not include slaughtered animals with tumors localized in the viscera and hides, animals cured by veterinarians, or animals dying of tumors on farms and ranches. It is interesting to note that in cattle undergoing federal meat inspection, tumors now exceed tuberculosis as a cause for condemnation.

The economic loss due to tumors in meat-producing animals during 1949 was calculated by Steiner and Bengston to approximate 3 million dollars, which is conceded to be a gross underestimate, since it fails to take into account losses on farms and ranches, and other factors, such as the adverse affect of tumors on body weight and the loss from lower grading of meat in animals with localized tumors. Furthermore, it does not include the large loss due to tumors in poultry.

In addition to this great economic loss, there is also a tremendous scientific loss, since these tumors end as tankage and other by-products. As the authors point out, research on tumors in food-bearing animals could contribute to the solution of cancer problems in man as well as in animals. Large animals with large spontaneous tumors offer many advantages; for example, one leukemic cow, in which one lymph node may weigh 20 lb., would provide more research material than thousands of leukemic mice for chemical, viral, nutritional, and other types of studies. Again, certain animal tumors might throw additional light on the relative importance of heredity and environment. Thus carcinoma of the eye is found chiefly in white-face Hereford cattle originating in the southern and southwestern parts of the country. It is not known, however, whether some strains are genetically predisposed to this type of neoplasm or whether the geographical distribution is explained purely by environmental factors. In these and other genetic studies breeding records would be of great value. A challenging finding, too, is the relative absence in food-producing animals of common tumors of man, such as carcinoma of the stomach, colon, mammary gland, prostate, pancreas, esophagus, uterus, and bladder. While the lowered incidence may in part be due to the comparatively young age at which the animals are slaughtered, the roles of natural resistance or possible etiologic factors, e. g., inadequate exposure to carcinogens should be considered.

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[1] Steiner, P. E., and Bengston, J. S.: Research and Economic Aspects of Tumors in Food-Producing Animals, Cancer 4: 1113, 1951.

Finally, as Steiner and Bengston emphasize, a wide range of tumors is found in food-bearing animals, mesoblastic tumors being relatively commoner and carcinomas relatively less common in animals than in man. Certain tumors in these animals may aid in the classification of some human tumors by exhibiting gradations between histogenetically related tumors that are missing or as yet undescribed in human material. In addition, the wealth of endothelial and mesothelial tumors provided by cattle should be particularly valuable, since these types of tumors are rarely seen and poorly understood in man.

BIOSYNTHESIS OF LABILE METHYL GROUPS

Since the promise of understanding the genesis and, nce, the control of neoplastic growths seems to lie in a more complete grasp of the fundamental sciences, attention in recent years has been directed to the finer details of the mechanisms of intermediary metabolism. Studies have been made of the biologic significance of the methyl group, its transfer from one compound to another in vivo, and its origin. In the well-known lipotropic effect in the liver brought about by methionine,[1] it appears that this no acid provides the labile methyl groups for the mation of choline, which promotes removal of the ex- ess fat, and current evidence supports the view that endogenous creatine is formed from glycocyamine through transfer of the methyl group from methionine. Also, when growth of young animals is retarded by removal of this essential amino acid from the diet, resumption of growth follows addition of homocystine and choline (a methyl donor). This evidence for the indispensability of the methyl group raises a question about possible endogenous production. Long ago it was postulated [2] that the animal body must secure preformed methyl groups for purposes of detoxication and possibly for the formation of creatine and choline; however, it has been shown [3] that when the heavy hydrogen content of body water is increased, the methyl groups in the choline prepared from the tissues contain heavy hydrogen, an indication of th in vivo synthesis of the methyl group. Again, this is suggested by the observation of Bennett and co-workers that certain rats continued to grow on a diet containin homocystine but devoid of preformed methyl groups. Intestinal bacteria are known to carry on synthesis of compounds of biochemical importance, but this possible ex ogenous source of the methyl groups was eliminated b repeating the experiment [5] on germ-free laboratory ani mals; the same suggestion of in vivo synthesis was se cured. Additional support was provided by experiments in which liver slices were incubated in a medium contain ing sodium formate, which was labeled with radioactiv carbon; both the methionine and the choline isolate from the tissue contained the C^{14}.

In a recent report [7] additional evidence for the in viv synthesis of labile methyl groups is brought forwar Sodium formate, methyl alcohol, formaldehyde, an sodium bircarbonate, each labeled with C^{14}, were inje ted into laboratory animals; the choline and the methi nine prepared from the tissues contained the labele carbon in every case, except when the bicarbonate w given. In another group of animals, C^{14}-formyl-L-phenyl lanine was injected and C^{14}-methyl stearate was fed, an it was found that the carbon of the formyl radical and th of the methyl group of the ester can be demonstrated the methyl group of the choline obtained from the tissu Thus, it has been shown that the indispensable meth group can be of endogenous origin; the raw materials, the cases investigated, being simple one-carbon con pounds, a hitherto unsuspected instance of the enormou factor of safety possessed by the animal organism.

SYMPOSIUM ON PESTICIDES

A panel discussion on the newer toxicants of medic economic, and pharmaceutical interest has been a nounced in connection with the national meeting of t American Association for the Advancement of Scienc This symposium will be held in the Philadelphia Munic pal Auditorium, Philadelphia, Saturday afternoon, De 29, 1951. A practical, informative discussion of the ec nomic, hygienic, and therapeutic applications of t newer pesticidal toxicants will be provided for phys cians, pharmacists, and other health personnel atten ing the meeting.

Many significant changes have taken place in rece years in the medical and public health employment pesticides. Among these are the use of improved chen icals for the treatment of disease, the control of filth ar disease-carrying insects and rodents, and the manageme of unwanted plants that harbor insects, blister the ski or produce undesirable pollens. These advances and the meaning in terms of professional practice will be sun marized by the panel discussants. from the chemica pharmacological, and pathological standpoint. Th speakers include members of the Committee on Pest cides of the A. M. A. and others prominent in this field.

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1. Tucker, H. F., and Eckstein, H. C.: Effect of Supplementary Methionine and Cystine on Production of Fatty Livers by Diet, J. Biol. Chem. **121**: 479, 1937.

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3. du Vigneaud, V.; Simmonds, S.; Chandler, J. P., and Cohn, M.: Synthesis of Labile Methyl Groups in the White Rat, J. Biol. Chem. **159**: 755, 1945.

4. Bennett, M. A.; Medes, G., and Toennies, G.: Growth of Albino Rats on Choline-Free Diet in Which Homocystine Is the Only Sulfur-Containing Amino Acid, Growth **8**: 59, 1944.

5. du Vigneaud, V.; Ressler, C., and Rachele, J. H.: The Biological Synthesis of "Labile Methyl Groups," Science **112**: 267, 1950.

6. Sakami, W., and Welch, A. D.: Synthesis of Labile Methyl Groups by the Rat in Vivo and in Vitro, J. Biol. Chem. **187**: 379, 1950.

7. du Vigneaud, V., and others: One-Carbon Compounds in the Biosynthesis of the "Biologically Labile" Methyl Group, J. Am. Chem. Soc. **73**: 2782, 1951.

ORGANIZATION SECTION

SUMMARY OF ACTIVITIES AT THE LOS ANGELES CLINICAL SESSION

Los Angeles will long be remembered for the Fifth Clinical Session of the American Medical Association, at which the attendance far exceeded that of any of the previous Clinical Sessions. The Council on Scientific Assembly, which is charged by the constitution of the American Medical Association with the preparation of programs for the general assemblies, gratefully acknowledges the help of the Local Committee on Arrangements n developing the program for the Los Angeles meeting, and it ommends especially the local co-chairmen, Drs. Walter Scott and J. Lafe Ludwig. The complete list of those who faithfully erved on the Local Committee was published in THE JOURNAL, Nov. 3, page 955. The majority of those who appeared on the program were from the vicinity of Los Angeles, but speakers rom other parts of the country also participated. The scientific program, arranged primarily to be of great interest to the genral practitioner, was presented in the huge Shrine Convention Hall. It consisted of general lectures, scientific exhibits, color elevision of surgical operations and demonstrations, medical motion pictures, and technical exhibits. The House of Delegates eld its meetings at the Biltmore Hotel, except for a special eveing meeting in the auditorium of the Shrine Convention Hall, where some 7,000 persons were addressed by Senators Robert A. Taft and Harry F. Byrd. About 2,000 who came to this meeting ould not be admitted because of lack of space in the auditorium.

he Scientific Program

The first speaker on the scientific program in the auditorium as Dr. Chevalier L. Jackson of Philadelphia, whose subject was he modern aspect of bronchoscopy. Dr. Jackson said that the ronchoscope was developed 50 years ago for the removal of oreign bodies from the lungs, but today 95% of its use is diected toward the diagnosis and treatment of disease, its three major uses being the removal of foreign bodies, the detection of umors, and the treatment of tuberculosis. The modern management of tuberculosis requires the use of a bronchoscope to check he diagnosis and to plan treatment, which depends on the exact ocation and character of the lesion. The bronchoscope should be vailable in every well-equipped hospital and sanatorium. Dr. ackson, in cooperation with Dr. John F. Heuber of Philadelphia, lso demonstrated in the scientific exhibits the important anaomic factors to be considered in bronchoscopy.

The second general lecture was presented by Dr. Lewis A. Alesen of Los Angeles, whose subject was the biological interretation of economics. Dr. Alesen, associate clinical professor f surgery at the College of Medical Evangelists and president-lect of the California Medical Society, urged the medical proession to take the lead in selling the American way of life. He aid that compulsory health insurance is just one minor phase of he total socialistic program that its backers are trying to foist n the American people, in spite of the fact that in 2,500 intances throughout history where collectivism has been tried, it as not once succeeded.

The third general lecture was presented by Dr. Geza de Takats f Chicago, whose subject was the limitations of sympathectomy n the treatment of diastolic hypertension. In reviewing a series f hundreds of cases, Dr. de Takats emphasized the care that must be taken in the selection of patients for sympathectomy. He ointed out that sympathectomy would not be successful in hyertensive patients who are suffering from an advanced stage of nephrosclerosis. There were no deaths in this series from the operation, and nearly all of the patients are enjoying better health in spite of the fact that there was no reduction in blood pressure in some of them. In others the blood pressure fell to normal, in some the progressive rise of the blood pressure was arrested, and in some patients, an intense, intractable headache was relieved.

Dr. Tom D. Spies of Chicago, Cincinnati, and Birmingham, Ala., gave a general lecture on chronic alcoholism. Dr. Spies said there are 4 million heavy drinkers in the United States, of whom 1 million are considered alcoholic addicts. Many of these drinkers, he said, suffer from organic ailments and many others from nutritional deficiencies. The attending physician must determine which of these two elements is behind the alcoholism. If the alcoholic was nonpsychotic before he began to drink, his case is handled best by therapy aimed at reducing his psychosis, which in turn can reduce his drinking; but if the alcoholic became psychotic as a result of drinking the treatment is to attack his alcoholism by chemical means; the psychosis can then be reduced also. Short-term therapy, Dr. Spies said, is completely lost on the alcoholic, and treatment extending a few weeks or even a year generally is not effective. Dr. Spies is now in the midst of study of alcoholism to try to determine the effect of nutrition on the craving for alcohol.

Dr. Sidney A. Portis of Chicago discussed advancements in the treatment of cirrhosis of the liver. Dr. Portis said that while heretofore cirrhosis of the liver was associated mostly with alcoholism, malnutrition, and cholecystitis, the incidence of this disease is on the increase and that additional causes of cirrhosis of the liver are recognized today. Many researchers hold now that there is a relation between cirrhosis and acute infectious hepatitis, which was widespread during World War II. The sulfonamides, aureomycin, and some other drugs have caused liver dysfunction, as have transfusions of blood and the use of nonirradiated plasma. He said that blood transfusion can no longer be considered an innocuous procedure, unless the medical history of the donor is known. For the treatment of the active stages of cirrhosis of the liver, Dr. Portis recommended a high protein diet with vitamin C and vitamin B complex and fat soluble vitamins. The intravenous administration of dextrose is of the utmost importance. A high caloric, highly nutritious diet is the most important single aspect of the long-term management of chronic liver disease. Such a diet should contain at least 3,500 calories. The food should be palatable, and feedings should be given at frequent intervals. In spite of the recent emphasis on dietary deficiency in the development of cirrhosis of the liver, the traditional prohibition of the use of alcohol by those suffering from the disease has not been changed.

Dr. John Z. Bowers of Salt Lake City reported that a mysterious poisoning had resulted from the processing of beryllium in some industrial plants. Beryllium has many applications in modern industry. Dr. Bowers said that the poisoning was apparently caused by nonradioactive beryllium and involved the skin and lungs of the victims. A few of the poisoned victims merely were living in the vicinity of a plant when taken ill. A few of the patients died.

Dr. Elmer Belt of Los Angeles discussed the cause and treatment of impotence. He said that deep emotional conflicts are the predominant causes of impotence. Impotence may be a reflection of the patient's feeling of failure in his daily life, either in business or social activities. Dr. Belt advised physicians not to take a light view of this condition when it has been determined that the evidence is psychic and not due to organic causes.

Dr. Robert M. Shelton of Pasadena, Calif., pointed out the change in the attitude of physicians toward diet in diabetes mellitus. It is realized now, he said, that fat and not sugar requires special handling in the diabetic diet. Fat, he said, was once the mainstay of the diabetic diet, but now is suspect. Contrary to the past custom, it is now believed that the diabetic should not be starved for carbohydrates and should be given a wider variety of foods than before and then given enough of the improved forms of insulin so that he can use the carbohydrates.

Dr. John M. Adams of Los Angeles discussed poliomyelitis and the coxsackie virus. He pointed out that group B of the coxsackie viruses is associated with diseases of the nervous system that simulate poliomyelitis and other forms of nonbacterial meningitis, while the group A viruses have been identified with an epidemic of acute, feverish illness characterized by blisters and ulcers of the throat. Discovery of these new viruses has resulted in some confusion in the diagnosis of poliomyelitis. Both the coxsackie and the poliomyelitis viruses are widespread in man.

Dr. Paul D. White of Boston said that medicine is well on its way to controlling rheumatic fever with its toll of lives from heart failure. Rheumatic fever, he said, has almost disappeared in areas where the standard of living is higher, such as suburban areas. This encouraging result is due to the development of the antibiotics and other drugs that control the streptococci. Dr. White emphasized also that many persons are still eating too much and that if they could reduce the unnecessary calories it would help to prevent many cases of heart diseases and diabetes.

Dr. Elmer Hess of Erie, Pa., discussed nephroptosis, pointing out that many persons with "floating kidneys" are having them either taken out or sewn back into place unnecessarily, as their painful symptoms often result from other causes. Dr. Hess reported on 241 such patients, in whom careful study showed that only 30 needed such an operation and that complete relief was obtained in only 14 of the 30 patients. He pointed out that the kidneys can move in their normal position as much as five inches.

Dr. Allyn J. McDowell of North Hollywood, Calif., discussed treatment in the primary management of burns. He said that the exposure method has been used with great success in the last two years. This method consists of the immobilization of the burned parts, with constant exposure to room air plus elevation of the burned parts to combat swelling. No dressings nor medicaments are applied. Dr. McDowell stressed that this method should not be considered as a routine treatment of all burns nor as a method to supplant all previous methods, but that fewer skin grafts will be necessary with the use of the exposure method of treating vere burns. In the event of an atomic disaster, it seems prob- at this time, that the exposure method may be the only ctical method of treating a large number of severely burned persons.

Due to limitation of space, it is impossible to abstract all of the many interesting contributions to this portion of the scientific program. A complete list of the speakers and their subjects was published in The Journal, Nov. 3. Those interested in any particular subject may write direct to the author for additional information. Some of the papers may eventually be published in The Journal.

Color Television and Films

Color television was one of the most popular features of the program. Space was available for 700 physicians to be seated before 14 color television receivers, but it was insufficient to accommodate all of those who wished to see the surgical operations and clinics presented during the meeting. In the forenoon, members of the staffs of the University of Southern California Medical School, the College of Medical Evangelists, and the Los Angeles County Hospital presented surgical operations on the color television program. These included operations on the gallbladder, thyroid, breast, and bones, and circumcision, hemorrhoidectomy, and the repair of hernia and fistulas. Childbirth by cesarean section was also shown. In the afternoon there were clinical demonstrations of the treatment of skin diseases, diabetes, cardiovascular diseases, tumors, poliomyelitis, and the care of premature infants. The surgeon described the operation as he proceeded step by step, his voice being carried by a small microphone tucked in his surgical mask. The television signals originated in the Los Angeles County Hospital and were relayed seven miles through the air to the Shrine Convention Hall. Of special interest on this program was an operation for coarctation of the aorta. The operation was performed by Dr. John C. Jones of Los Angeles on a man 20 years of age, and it was viewed on television not only at the American Medical Association meeting but at the University of Chicago Medica Center and at the headquarters of the Columbia Broadcastin System in New York City, where medical educators, medica school deans, and other physicians were assembled before television receivers. This was the first transcontinental transmissio of color television. The operation was performed Friday afternoon, after the various other portions of the program were ove and the fact that 700 persons remained to view this operatio indicates that physicians are greatly interested in medical colo television in the field of medical education. It was especiall interesting to learn that Dr. Walter W. Higgs of Park Rapid Minn., who first diagnosed the lesion in this young man som 10 years ago, flew to Chicago to watch the operation on h former patient on the television screen at the Chicago Medic Center.

The entire color television program was directed and spo sored by the Smith, Kline, and French Laboratories of Philade phia, which owns and operates its own equipment, which specially designed for medical purposes by the Columbia Broa casting System. The Los Angeles program was the 29th su program that this Philadelphia pharmaceutical firm has pr sented at medical meetings throughout the United State Canada, and Europe as a contribution to medical education.

The motion picture program, which was arranged with t assistance of the Committee on Medical Motion Pictures, co prised 11 different films, each of which was shown once ea day. Films on the following subjects were presented. The dia nosis of poliomyelitis, self preservation in an atomic attack, t exfoliative cytologic method in the diagnosis of gastric canc surgical approaches to the knee joint, physical medicine in t home treatment of arthritis, early diagnosis of uterine canc surgical management of primary hyperthyroidism, extrape toneal cesarian section, the bone bank, operation blood ban and heparin in the prevention and treatment of thrombosis. T number of seats available for this program was insufficient the first day and thereafter was enlarged to accommodate 2 persons. The total number of persons counted in the moti picture hall during the four-day meeting was 4,149. Again t medical motion picture demonstrated its usefulness as a mea of postgraduate education.

The Scientific Exhibits

The scientific exhibits, as always at A. M. A. meetings, tracted a large attendence. At this meeting the nearly 90 exhib were correlated with the scientific sessions in order to emphasi the subjects under discussion. Among the highlights was the e hibit on the treatment of fractures, at which several physicia demonstrated the latest techniques and actually applied plast casts where such treatment was necessary. Continuous demo strations were presented on the treatment of the fracture of t lower end of the radius, fracture of the ankle, and compressio fracture of the spine. The exhibit on fractures has for ma years been a popular feature of the scientific exhibits. Dr. Kello Speed of Chicago, who has been chairman of the Committee Fractures for some 25 years, was awarded a certificate of me by the House of Delegates at this meeting. Another highlight w the exhibit symposium on overweight, nutrition, and health, wi a question and answer conference, presented jointly by the Cou cil on Foods and Nutrition of the American Medical Associatio the American Dietetic Association, the Metropolitan Life Insu ance Company, the U. S. Public Health Service, and the Depa ment of Nutrition of Harvard University. Adjacent to th exhibit was a small auditorium where films were shown demonstrate the effects of overeating and the proper kinds diet. In this auditorium competent leaders discussed differe phases of the problem of overweight and nutrition and answere questions that had been mailed in or that came from the floo In all, there were five exhibits on this subject, with continuo demonstrations throughout the week.

At the exhibit demonstrating the danger of noise as a healt hazard, the physiology of the ear was reviewed at a booth spo sored by the Council on Physical Medicine and Rehabilitation. Specialists on job placement and rehabilitation discussed the rehabilitation and reeducation of patients suffering from ear disorders that have developed along with the industrial age. This booth was sponsored by the Council on Industrial Health. In the booth on audiometry and ear protection, sponsored by the American Academy of Laryngology and Otology, demonstrations were given on measuring the hearing acuity of the human ear. Members of the Acoustical Society of America presented short demonstrations of the fundamentals of the physics of noise. The Acoustical Materials Association demonstrated how to condition ceilings and walls in hospitals, industrial plants, and offices so that the noise hazard would be reduced.

The new method of artificial respiration, known as the back-pressure-arm lift method, attracted wide attention at this meeting and in the newspapers. THE JOURNAL, Dec. 8, 1951, page 1444, contains an article on this method in comparison with the older methods of artificial respiration. Dr. Archer S. Gordon, senior author of the article in THE JOURNAL, was present to aid in this demonstration.

Among the other exhibits were atomic medicine in general practice; problems of delivery—manikin demonstrations; tests for intoxication; definitive and differential diagnosis of poliomyelitis; diabetes detection by the physician; U. S. Air Force patient air evacuation system; practical gynecology; and evaluating the disabilities of the cerebral palsied. A complete list of the scientific exhibits appeared in THE JOURNAL, Nov. 3, page 962.

Technical Exhibits

After registering at the Shrine Convention Hall, visitors at the Los Angeles Clinical Session entered the technical exhibits, which occupied the entire main floor. There more than 150 manufacturers of medical equipment, of pharmaceutical and food products and medical book publishers displayed their products in a most attractive manner. This large room was crowded from morning until evening. Reprints of medical articles, descriptions of the contents of products, and, in many cases, samples were distributed. At some booths the exhibitors served samples of foods, and hot and cold soft drinks. The technical exhibits demonstrated important developments, new procedures and techniques, and other medical advances. The visitor left this room with new knowledge, and the commercial representatives obtained new ideas about their products, both to the ultimate benefit of the patient. Much interest was shown in two photomurals in the Walgreen exhibit showing 50 years of progress in the development of the Walgreen prescription service since the senior Walgreen opened his first drug store in Chicago in 1901. At the Devereux Schools exhibit, physicians learned that the schools provide facilities for the education and treatment of children who have academic or emotional difficulties. The State Journal Advertising Bureau exhibit created much interest. The 34 journals comprising the bureau have the same advertising standards as the A. M. A. publications. It was interesting to observe here that a new journal, the Maryland Medical Journal, will publish its first issue in January, 1952.

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES AT THE CLINICAL SESSION IN LOS ANGELES, CALIF., DEC. 4-7, 1951

The actions of the House of Delegates at the Los Angeles Session are herewith abstracted so that the readers may have this information in digest form. The official proceedings will be made available, as in the past, in a booklet, which will be sent to all members of the House of Delegates and officers of the American Medical Association by the Secretary. This booklet will not be available for several weeks.—ED.

Report of Reference Committee on Credentials

Dr. H. Russell Brown, Chairman, reported that 182 delegates had registered, and the Speaker announced that a quorum was present.

Invocation

The Rt. Rev. Msgr. Thomas J. O'Dwyer of Los Angeles delivered the following invocation:

Direct, we beseech Thee, O Lord, all our actions by Thy holy inspiration, and carry these conventions on by Thy gracious assistance, that these conventions and all officers and members assembled therein may begin their deliberations from Thee and through Thee, and that they may be happily and successfully ended.

We pray Thee, O God of wisdom and justice, through whom authority is rightly administered, laws enacted and judgments decreed, assist with Thy holy spirit of counsel not only all the members of the medical societies of the United States but all who are appointed in city, state and nation to guard not only our health but our civic and social welfare.

We pray Thee at this time of crisis that the light of Thy divine wisdom many shine on the deliberations of our legislatures in the states and the deliberations of our Congress, that the laws and proceedings may be framed for our rule and government so that they may tend to the preservation of peace, the promotion of national happiness, the increase of industry, sobriety and useful knowledge, and may it perpetuate to us the blessings of liberty.

In this time of great crisis, we recommend to Thee, Almighty God, through Thy unbounded mercy, all our citizens throughout the United States, that they may be blessed in the knowledge and sanctified in the observance of Thy most holy law, and that they may be preserved in union and in that peace which the world cannot give. We ask Thy blessings on all here assembled. Amen.

General Practitioner of the Year

Nominations of Drs. Everett Beam Lattimore, Shelby, N. C., Clayton Willison, Sault Ste. Marie, Mich., and A. C. Yoder, Goshen, Ind., were presented by Dr. Dwight H. Murray, Chairman. Board of Trustees. On a second ballot the House of Delegates elected Dr. A. C. Yoder, Goshen, Ind., the General Practitioner of the year.

Telegram from California Teachers Association, Southern Section

The Secretary read a telegram addressed to the House of Delegates by J. Stanley Brode, President, California Teachers Association, Southern Section, and a suggested reply by the Speaker, Dr. F. F. Borzell, as follows:

> We extend to you our warm and hearty greeting. We honor you as representatives of men of medicine, who not only have been close to our profession in the task of dispelling ignorance and misunderstanding in matters of health, but have been so cooperative in protecting the welfare of our charges, the children and youth of America.
>
> You have our confidence in the manner and competence with which you do your work. We feel that we merit from you a like confidence in our competence in the tremendous task that is ours. We hope that you will make use of our AMA-NEA Joint Committee not only to consider the methods and practices of teaching health and of maintaining health standards of the schools and school personnel, but will use this "tie" also to learn something of the true nature and extent of current problems of education.
>
> On behalf of the 30,000 members of the California Teachers Association, Southern Section Directors we extend to you our cordial greeting and sincere desire to cooperate with you and the profession you represent both during your stay here and throughout the year.

SUGGESTED REPLY

It was the unanimous desire of the House of Delegates of the American Medical Association to have me express our deep appreciation of your wire of December 3. Our Association will do everything it can to cooperate with you in the task that both of us have before us. We appreciate the past cooperation of your Association with ours and we are glad to have it continue.

The telegram was received by the House and the Secretary instructed to transmit the suggested reply.

Address of Speaker

The Speaker presented the following address which was referred to the Reference Committee on Reports of Officers:

To the Members of the House of Delegates of the American Medical Association:

The Speaker intends to continue the policy adopted by this House some years ago of conservation of time and exercise of brevity, but not at the expense of the deliberation necessary to arrive at sound conclusions. Therefore, my remarks will be confined to matters referable to the conduct of the House.

We welcome those who are sitting in this body for the first time. For your benefit and to refresh the memory of our older delegates, let me remind you of some details intended to expedite procedure and at the same time give to all ample opportunity for discussion and debate.

All resolutions must be presented in proper form—providing eight copies. A staff of stenographers are at your service for this purpose.

In addressing the Chair, please announce your name and the state or group you represent. This is necessary for the benefit of the record as well as your listeners.

In presenting resolutions, try to confine your reading to the resolution, omitting the "Whereas" portions. The arguments or ons for the resolution are matters for presentation and argu- in the reference committee hearings.

eference committees will probably convene at 9:00 o'clock omorrow morning. The several committees will remain in session long enough to give all an opportunity to be heard.

If any resolution is of such a nature as to call for consideration in executive session, the procedure is that the resolution be resented by title with the request for referral to the Reference ommittee on Executive Session. This reference committee sitting in executive session will then consider the advisability or necessity of consideration in either closed or executive session. It will make its recommendations to the House. The time of such closed or executive session as decided by the House shall then be determined.

It is the privilege and responsibility of reference committees to call in anyone for advice or assistance in arriving at conclusions and preparation of reports. Because of past experiences the Chair would recommend that whenever a report may have a potential impact on our public relations, the committee call into conference our public relations or publicity experts and, if necessary, our legal department before submitting the report to the House. A simple change of wording may well be the difference between intelligent understanding of the intent of the House and misinterpretation with resulting faulty publicity.

REFERENCE COMMITTEES

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L. Samuel Sica, *Chairman,* New Jersey
Joseph H. Howard, Connecticut
Eustace A. Allen, Georgia
Julian E. McFarland, Iowa
Val H. Fuchs, Louisiana

MEDICAL EDUCATION AND HOSPITALS:
Joseph D. McCarthy, *Chairman,* Nebraska
Harlan A. English, Illinois
George A. Earl, Minnesota
George S. Klump, Pennsylvania
Bruce Underwood, Kentucky

LEGISLATION AND PUBLIC RELATIONS:
R. B. Robins, *Chairman,* Arkansas
Alfred S. Giordano, Indiana
Floyd S. Winslow, New York
H. Gordon MacLean, California
George A. Unfug, Colorado

HYGIENE AND PUBLIC HEALTH:
Charles L. Farrell, *Chairman,* Rhode Island
W. Palmer Dearing, U. S. Public Health Service
F. Sanchez-Castano, Puerto Rico
Walter E. Vest, West Virginia
Joseph P. Henry, New York

AMENDMENTS TO CONSTITUTION AND BY-LAWS:
Leo F. Schiff, *Chairman,* New York
John F. Burton, Oklahoma
Willis H. Huron, Michigan
Felix J. Underwood, Mississippi
James L. Whitehill, Pennsylvania

REPORTS OF OFFICERS:
Carlton E. Wertz, *Chairman,* New York
Robert L. Schaeffer, Pennsylvania
William C. Chaney, Tennessee
Joseph B. Copeland, Texas
Jesse D. Hamer, Arizona

CREDENTIALS:
H. Russell Brown, *Chairman,* South Dakota
Karl S. J. Hohlen, Nebraska
Everett C. Fox, Section on Dermatology and Syphilolog
Laurence S. Nelson Sr., Kansas
Jacob W. Bird, Maryland

EXECUTIVE SESSION:
Gilson Colby Engel, *Chairman,* Pennsylvania
Stephen E. Gavin, Wisconsin
Herbert P. Ramsey, District of Columbia
Alfred S. Hartwell, Hawaii
Robert E. Schlueter, Missouri

INSURANCE AND MEDICAL SERVICE:
Raymond M. McKeown, *Chairman,* Oregon
Gordon F. Harkness, Section on Laryngology, Otology a Rhinology
J. Morrison Hutcheson, Virginia
Martyn A. Vickers, Maine
Robert L. Novy, Michigan

INDUSTRIAL HEALTH:
Millard D. Hill, *Chairman,* North Carolina
Charles T. Stone Sr., Section on Internal Medicine
James M. Faulkner, Massachusetts
Raymond F. Peterson, Montana
Daniel G. Gill, Alabama

MEDICAL MILITARY AFFAIRS:
Homer L. Pearson Jr., *Chairman,* Florida
Russel V. Lee, Section on Military Medicine
Roscoe H. Reeve, Wyoming
E. Vincent Askey, California
Robert B. Homan Jr., Texas
Consultants:
George E. Armstrong, U. S. A.
Clarence J. Brown, U. S. N.
Dan C. Ogle, U. S. A. F.

MISCELLANEOUS BUSINESS:
Warren W. Furey, *Chairman,* Illinois
Patrick J. Sullivan, Massachusetts
Elmer P. Weigel, New Jersey
J. Stanley Kenney, New York
Carl A. Lincke, Ohio

TELLERS:
John F. Conway, *Chairman*, New Mexico
Willard A. Wright, North Dakota
Hoyt B. Woolley, Idaho
John J. Curley, Massachusetts
Frank J. Elias, Minnesota

SERGEANTS-AT-ARMS:
Samuel J. McClendon, *Master Sergeant*, California
Edward P. Flood, New York
J. Wallace Hurff, New Jersey

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Dr. Carlton E. Wertz, Chairman, presented the following report, which was adopted:

Your reference committee wishes to commend your Speaker on his desire to conduct the affairs of this House in such a way as to conserve time, but not at the expense of the necessary deliberations to arrive at sound conclusions. Your committee wishes to emphasize that all resolutions should be presented in proper form, typed on the special forms which are available both at the meetings of the House or from the office in Chicago in advance. The proper preparation of all resolutions greatly facilitates the work of the Speaker and your reference committees. Your Speaker is supported in his caution in the use of words in reference committee reports and the danger of the wrong interpretation that might sometimes derive therefrom. The committee desires to express its great appreciation of the ability of the Speaker in his duties as presiding officer.

Address of the President, Dr. John W. Cline

Dr. John W. Cline, President, presented the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker, Members of the House of Delegates:

The atmosphere in which we meet here in Los Angeles is far different from that surrounding the Clinical Session in St. Louis, three years ago. In the intervening period, important and significant changes have taken place. The threat that we faced three years ago unified the profession to a degree never previously known. It has become a cohesive body capable of greater concerted and more effective action.

It has been said that experience is the greatest of teachers. We have learned many things that we should have known without having had to learn the hard way. In retrospect, it is always easy to recognize errors and to criticize. The past is history, and its principal importance lies in the fact that we may draw lessons from it that will be of value to us in the future.

The American Medical Association should never have permitted itself to be placed in a defensive position. It was, and is, a great public service organization conducting its activities in the public interest. We were sufficiently naïve to believe that this alone would protect us from the false accusations and malicious slander of small-minded, self-seeking persons who, as the result of political accident, found themselves in positions for which their narrow experience and limited concepts could scarcely be considered adequate qualification.

We have learned that a profession with high ethical standards and devoted to the public welfare is not immune to scurrilous attack or the now too familiar smear methods employed by demagogues and socialist-minded bureaucrats. Necessity has taught us to meet such assaults vigorously and effectively. As a consequence, American Medicine is no longer a wise choice as a whipping boy. The outstanding lesson to be learned from this experience is that we must never again allow ourselves to be placed on the defensive. While we labor to improve and expand our service to the American people we must be alert and keep our powder dry.

American Medicine has become a more important part of our integrated society as it has grown and advanced and as the interest of the public in matters of health and medical care has increased. The events of the past few years have shown us that we may not have been as conscious of our faults as we should have been. As an important, and in some ways a favored, segment of society we have heavy responsibilities to society as a whole.

Perhaps our obligations are no greater than are those of others who supply essential service in other fields. On the other hand, unless we measure up to them we shall not be accorded the respect to which we aspire and our freedom will be in jeopardy. We know that freedom of medical research, freedom of medical education, and freedom of medical practice are essential to a continuously improving standard of medical care. The loss of those freedoms would lead inevitably to a deterioration in the quality of medical care. The withering effect of bureaucratic control has been obvious throughout the world.

Let us take stock of our strengths and our weaknesses. Let us make that evaluation known, and let us seek the advice and assistance of others in improving the service we render.

One of our strong points is the nature of the American Medical Association and the character of its activities. Most of its nine million dollar budget is assigned to councils, committees, bureaus and departments that are devoting full time to activities leading directly or indirectly to improvement in the medical welfare of the public. Even a cursory review of these efforts, programs and projects will provide conclusive proof of that fact.

One of our weaknesses is that we have been content to do these things without making them known to the persons who benefit by them. Dissemination of this information would be far more effective in establishing the true nature of our organization than efforts to reply to attacks on us. Once the public understands the American Medical Association and its aims and objectives the assaults on medicine will be ineffectual.

Scientific medicine in the United States has progressed to a point never reached before any place in the world. Our standards of medical education and medical care have never been equaled, and these are the developments wrought by a free profession and educational institutions unhampered by governmental control. The principal problem has been and, to a large extent, remains the best means of distributing these advantages to all the people. In the main the approach is through voluntary health insurance. The growth and development of plans offering this coverage has been gratifying. When one realizes the short space of time in which this has been achieved it must be considered to represent satisfactory progress.

More than 77,000,000 persons now have some coverage against the costs of illness. About 22,000,000 are enrolled in Blue Shield and other medically sponsored plans, and 44,000,000 are enrolled in Blue Cross plans. This growth has been phenomenal. More than half our population has protection from the economic hazards of illness. On the other hand, we must not only expand the numbers enrolled but improve our plans. The exact direction the improvement should follow is not equally clear. As of this time, no one can say what will constitute the most desirable coverage in the future. The multiplicity and diverse nature of the plans creates a healthy situation. The very elasticity of the programs permits and encourages experimentation. The orderly process of evolution will produce a form that at some future date will be generally agreed on as embodying the most nearly ideal type of coverage. This process will not be limited by the legal enactments or the arbitrary decisions of government agencies inherent in any scheme of socialized medicine.

Certain plans have developed coverage for catastrophies that has proved workable, and the approach has been somewhat different in various parts of the country. More needs to be done in this direction and unquestionably will be done.

A few plans have begun experiments designed to include the older age groups and on an individual basis. More must and will be done along this line. We must proceed with cautious determination to find methods that will provide realistic coverage without endangering the solvency of our plans. The experience gained by numerous limited enrolments ultimately will demonstrate a satisfactory method free from the hazards of any all-inclusive, extensive plan blindly applied to large numbers.

The vast majority of our members support the prepayment mechanisms of distribution of the costs of medical care, but, here and there, individuals and some groups have withheld cooperation or give only reluctant support. There can be little question that voluntary health insurance is our greatest bulwark against socialized medicine. Even the proponents of socialized medicine clearly recognize this. We must have the full and vigorous support of the entire profession in this program.

The care of the indigent and near-indigent patient always has been and properly should be the responsibility of community charities, and local or state government. Conditions vary widely in different parts of the country. The studies we have conducted and are presently carrying out have been and will be helpful in improving this care.

The distribution of medical care is still not equal in all areas. Neither are other essential services, but the degree of maldistribution is far less than has been alleged. We have made substantial strides in cooperation with farm organizations in our rural medical care programs, the encouragement of general practice and the joint plans of the American Medical Association and the medical schools to interest young physicians in rural practice. Our physicians placement service, in conjunction with those of the state associations, will bring about further improvement. The public must realize that physicians will settle in areas where it is possible for them to practice good medicine. If proper facilities are provided by communities needing physicians, there will be little difficulty in inducing well-trained physicians to locate in them. This effort is the joint responsibility of the profession and the public.

We have opposed and must continue to oppose federal aid to medical education as proposed in S. 337, because of the inherent threat to the freedom of education. We recognize that many of our medical schools are in financial difficulty. The program inaugurated one year ago has progressed fairly well, but the response by individual physicians has not been nearly so great as it should have been.

Each one of us owes a debt to medical education. There always has been a discrepancy between the cost of education and tuition. No one of us contributed the full expense of his education in tuition. Let us discharge this debt promptly. I hope every state association and every county society will establish active agencies to bring this about.

We have in effect accepted a challenge, and it is up to us to e good. I hope every member of the House will return home ermined to see this campaign grow in strength and effectiveness.

Let us consider briefly what our patients object to in their medical care. In my travels about the country, and in letters I have received, the same or similar complaints against the profession recur with some frequency. The principal complaints are the cost of medical care, real or fancied overcharges, and the lack of availability of medical care.

Our members must be informed to a greater extent concerning the costs of medical care. The total cost of medical care has risen less than the cost of living, and the only important item of it that has risen to a greater extent is the per diem rate of hospitalization. This must be emphasized to our patients, and we must show them the reasons for increased hospital costs. In spite of the expansion of methods of diagnosis and treatment, the most significant item in the cost of hospital operation is labor. In most well-operated institutions it represents from 60 to 70 per cent of the total. Higher salaries and higher wages are the most important factor in advanced per diem costs. The average expense per illness has increased relatively little, owing to shortened periods of hospitalization. The heavy expense of serious and protracted illness should be guarded against by enrolment in the voluntary plans.

A good grievance committee, by whatever name called, operating effectively and adequately publicized, is the best method of dealing with the small percentage of the profession who are guilty of exorbitant charges. We have no place in our medical organizations for the chiseler or the fee-gouger. Let us see that the public knows this, and let us encourage patients to bring any instances of these practices or other unethical conduct to the attention of the county or state societies. These then must be dealt with vigorously and effectively. It has been my experience that where this is best done the public has greater confidence in the profession and complaints against it are minimal. My mail would indicate that the situation already has improved to a considerable extent, but more needs to be done.

It should be pointed out that a major portion of the complaints against individual physicians have their origin in misunderstanding and that this misunderstanding begins with th first visit by the patient to the physician's office or that of th physician to the patient's home. Greater effort to eliminat sources of misunderstanding will result in greatly enhance patient-physician relationship.

Medical care may be required at any time and must alway be available. The central telephone exchange methods work we in our larger centers, and cooperative arrangements in small communities can take care of the need. Medicine perhaps h no more vigorous critic than the person who experiences unusu difficulty in obtaining the medical care he believes essential f himself or his family.

As individuals and as organizations we must work mo closely with other individuals and organizations sincerely int ested in sound efforts to improve the medical welfare of t American people. We must work more closely with allied grou such as the American Hospital Association, the American D tal Association, the American Nurses Association, the Ame can Public Health Association and other professional orga zations. Interprofessional committees at the state and local lev as well as on the national plane will be of mutual advanta and will result in benefit to the public. An excellent example such cooperation is to be found in the successful conclusion the negotiations in the matter of hospital standardization.

We must take greater interest and cooperate more fully w other organizations that have laudable purposes. Cooperati with civic organizations, veterans' groups and labor, busin industrial and professional organizations will result in impro health programs of proper type. We of medicine must furn leadership in matters of health and medical care. No one can do so with the requisite knowledge and understanding.

Within our own organization we must strive for efficie and effective action. There is a tendency for bureaucracy grow in large organizations somewhat after the fashion of g ernment. Lines of authority must be clear, and those w authority must be held responsible. Our organization must sufficiently elastic to meet any situation that may arise, bu cannot afford the luxury of inefficiency. We require the wh hearted support of the full membership to make our progra as successful as they should be.

The National Education Campaign is being curtailed beca of the progress that has been made in building public support our cause. The expenditures for this purpose will represen very minor portion of our budget next year. In the past y the expenditures of the National Education Campaign were proximately $500,000 and will be about $250,000 for the com year. Contrast that, if you will, with the total American M cal Association budget of $9,000,000. This emphasizes the n for the greatest possible efficiency in our entire organization. even greater extent it points up the necessity for active vigor support of the policies and programs of the Association by ev member.

In the resolutions introduced into the House and in our offi pronouncements we should be mindful of erroneous impressi that may be created by failure to exercise sufficient care terminology. We should be as specific as possible in our exp sions. Generalization may give offense when none was inten and thereby damage the public relations of the Association.

In visiting different states I have found that in some Woman's Auxiliary has not been given the encouragement assistance it deserves. It represents the greatest potential f we can have in the field of public relations. The failure of s physicians to recognize that fact has hampered its effectiven The auxiliaries need to be encouraged and guided. If this done adequately we will obtain almost unlimited and energ support for our programs. The American Medical Associat the state associations and the county societies are limited in field of political activity to expressions of opinion on iss These organizations cannot and do not enter into election c paigns. The same restrictions apply to the auxiliaries.

While we are physicians, we first of all are citizens, and do not foreswear the rights and duties of citizenship by bec ing doctors. The level of citizenship of the physician always been high but too often of the passive type. It has been s with some justice that persons in a democracy get the kind government they deserve. Failure to exercise the rights and du of citizenship results in a type of government none of us desi

The experience of the past three years has taught us to distinguish between those figures in public life who adhere to American democratic principles and who are willing to defend them publicly and those who believe in socialistic ideas or will espouse them for political advantage.

Party labels mean little. It is the ability, convictions, character and courage of the individual that count. We have watched the creeping advance of socialism over past years. The efforts to socialize medicine are but a part of the broad front of socialization and cannot be separated from it. Who can envision an island of medical freedom in a sea of socialism?

The next year will be one of important decision. If we are to protect our heritage of freedom, if we are to preserve the standards of medical care, this decision must be the correct one. Should this country continue on the road that inevitably leads to socialism those things we cherish will be irrevocably lost. The history of other nations clearly demonstrates that beyond a certain point there is no easy way of return. It may not be easy to stop the progress toward socialism, but it is far easier and more realistic to halt it than to try to eliminate it after it has become an accomplished fact.

I urge you, not as members of this Association, but as citizens, to act as individuals, in informal groups and in association with others. I urge you to be militant and to be determined. The time to begin is not six months hence, but now.

The future freedom of medicine and the future of our country depend on the events of the coming year. Let it not be said that we who clearly see the importance of this decision were in default of our duties as physicians and citizens.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Dr. Carlton E. Wertz, Chairman, presented the following report of the Reference Committee on Reports of Officers, which was adopted:

Your committee believes that the address of our President was a masterful presentation of medicine's position in our American life. He stressed many points, some of which we would like to recall to your attention for re-emphasis.

1. We must never allow ourselves to be placed on the deensive again.

2. That a major portion of the vast activities of the Amerian Medical Association are devoted directly or indirectly to he medical welfare of the public.

3. With regard to the distribution of medical care, the main pproach has been through voluntary health insurance. The full nd vigorous support of the entire profession must be had in his program of voluntary health insurance. It is our greatest ulwark against socialized medicine.

4. The debt each of us owes to medical education is another oint stressed by the President. All physicians are urged to ontribute to the American Medical Education Foundation. Aid o medical education is every doctor's business.

5. Interest in, and cooperation with, community groups. Leadership must be furnished in all matters of health and medial care.

6. The encouragement and assistance to the Woman's Auxiliry is of vital importance. They should have the full support of he profession.

7. The right and duty of all physicians as American citizens o act as individuals, and in associations with others to be miliant and determined in the coming year.

It is gratifying to note the comprehensive viewpoint expressed by the President and it is hoped that all physicians will read the address in full.

Announcement of Contribution to American Medical Education Foundation

Dr. Dwight H. Murray, Chairman, Board of Trustees, presented the following announcement:

The Board of Trustees reports to the House of Delegates that a half million dollars has been appropriated to the American Medical Education Foundation for the calendar year 1952. This is the second contribution made by the American Medical Association to the American Medical Education Foundation, the first allocation of funds totalling one half million dollars having been made in 1950 for the year 1951.

In announcing this second contribution, the Board of Trustees wishes to underscore the importance of this voluntary campaign to raise funds for medical schools. Your support in this vital project has already been urged by Dr. Cline in his address to this House of Delegates. The Board of Trustees wishes to reaffirm its support of this program and to assure the House of Delegates that it intends to carry it on with utmost energy. We are hopeful that technics will be developed and actions taken that will assure a substantial flow of funds from voluntary sources to the medical schools each year that will significantly assist the schools to meet the financial problems they face.

The House of Delegates should also understand that the American Medical Association is underwriting the total expenses involved in raising these funds for medical schools. Every dollar contributed is being allocated to the medical schools.

Presentation of President-Elect Louis H. Bauer

The Speaker presented to the House the President-Elect, Dr. Louis H. Bauer.

Presentation of Vice President Oscar B. Hunter and Invited Guests

The Vice President, Dr. Oscar B. Hunter, was presented to the House by the Speaker, and Dr. Hunter, in turn, introduced the following distinguished guests: Mr. Lewis Gough, Past Vice Commander, American Legion; Mr. Walter Neeley, Aide to Commander Wilson, American Legion; Mr. Newell W. Stewart, retiring Chairman of the House of Delegates, American Pharmaceutical Association; Dr. Harold Hillenbrand, Secretary, American Dental Association; Mr. Albert V. Whitehall, Director, Washington Office, American Hospital Association; Dr. A. J. J. Rourke, President, American Hospital Association, and Mr. Donald Wilson, Commander of the American Legion.

Address of President of American Hospital Association, Dr. A. J. J. Rourke

Dr. A. J. J. Rourke, President, American Hospital Association, addressed the House as follows:

Mr. Speaker, Dr. Hunter and Friends: It is a real pleasure to receive an invitation from the American Medical Association for the President of the American Hospital Association to say a few words to you this morning.

Things are different and things are changing. It reminds me of the story of the man who called the doctor and said, "Come over quickly. My wife is very ill. I am sure she has appendicitis and needs an operation." The doctor said, "Why, I took her appendix out three years ago. Whoever heard of a second appendix?" The fellow said, "That's right, doc; but did you ever hear of a second wife?" I say things are changing the same way, because last fall Dr. John Cline came before the American Hospital Association and addressed us. It was a new step in the progress of our organization to have that close affiliation with you, and now to be here the same thing holds true.

I think the important thing for our two associations during the coming year is for us to be able to differentiate between the straw men which are put up as problems for us to beat down. There are some real differences, some real problems, some major factors to be discussed, but I hope that your organization and ours will be able to differentiate between them. Your President, Dr. Cline, this morning said that the public had to be reminded of some of the positive accomplishments of your profession, and I agree with him very thoroughly. Most of you in the room today can well remember when you worked behind an iron curtain in treating many of the diseases which we have dealt with, and we have removed that iron curtain and today are carrying on successfully medical miracles in our hospitals and by members of your profession.

I would like to echo the words of Dr. John Cline in saying that this interim committee that worked out the Joint Commission on Hospital Accreditation deserves a great deal of credit. It is another milestone in our experience of cooperation with your organization.

We also had working during the past year, under the able leadership of your Past President, Dr. Elmer Henderson, and our Past President, Dr. Charles Wilinsky, a committee which met once in an attempt to work over some of the matters of mutual concern to us. We have again reappointed that committee and are awaiting an opportunity when Dr. Cline and myself, as Presidents of the two organizations, can come together and carry on to a further point the matters which Dr. Henderson and Dr. Wilinsky carried on, and there are a number of mutual problems.

This matter of economics is an important one, and it delighted me this morning to hear Dr. John Cline say to you folks that it is a responsibility of the physician to point out to his patients why hospital costs are what they are today and also to point out that the hospital stay has been reduced to such a point that the total hospitalization does not amount to as much.

In addition, we have the problem of medical education, and I want you to know that the American Hospital Association is keenly interested in that, because I am sure the research that has been done by the few malcontents in our organization has proven beyond a doubt that hospitals cannot be run without doctors. Therefore it is important that we should have an interest in the education of the young physician as he comes along, and, most important in that, is the matter of clinical material. You and I remember that we were only able to learn our medicine because we had patients demonstrating the diseases that our professors could point out to us, and today we are having a great deal of difficulty getting clinical material in our hospitals for this purpose, and I think, in addition to giving your money, which you have done so beautifully, as Dr. Murray has pointed out to you, in this wonderful gift of a half million dollars, I trust each and every physician in this country will assume the responsibility of finding at least one patient in his private practice yearly who would be willing to enter the teaching services of the grand medical schools in this country. In doing that, you and I know that you are not offering them second class or steerage medical care, because it is you members of the American Medical Association who are directing medical care in our teaching hospitals oughout this country.

It gives me a great deal of pleasure to see over and over again eater and greater cooperation between our two organizations. would like just to relate one short incident. I came back from Hawaii about two weeks ago where I had the pleasure of conducting, with a co-sponsor, your own Dr. Leveroos, of the Council on Medical Education and Hospitals, a two-day institute in hospital operation. I want to point out to you that this is certainly a new innovation, that the American Medical Association and the American Hospital Association has conducted an institute in hospital operation.

Again let me thank you for the kindness that you have shown me in allowing me to appear before your House of Delegates, and may I extend to you my very best wishes for a successful clinical session here in Los Angeles. Thank you, sir.

Address of Mr. Donald Wilson, Commander, American Legion

Mr. Donald Wilson, Commander of the American Legion, presented to the House the following address:

Mr. Speaker, Dr. Hunter and Members of the House of Delegates: You honor me by your invitation to present myself before you for a few remarks. I am particularly honored that you have given me your permission to say something to you after you learned that I was by profession a lawyer. Having been on the receiving rather than the giving end of most of the speaking when I am associatd with doctors, you can understand full well how extremely honored I am on this occasion to have practically free rein, at least for a few moments.

I am reminded of the perennial dispute that goes on between your profession and my own by the story of the engineer who was injected into the argument with the doctor and the lawyer as to which of the three came from the most time-honored profession. The doctor, as is so frequently his wont, spoke first and said that he believed he could quote Scripture and prove that his profession was the most time-honored of the three. He said, "After all, you remember that Eve was created out of the rib of Adam, and that was basically a surgical proposition, so the Scripture itself will prove that the medical profession is the most time honored." The engineer was something of an orator and an arguer, and he looked at the doctor and said, "Doctor, I hadn't planned to use Scripture to prove my point, but since you have brought it up, you should be reminded that before Adam and Eve, God was said to have created order out of chaos, and that, of course, was basically an engineering function, so, by your own argument, by your own reference, I have demonstrated that the engineering profession is far more time honored than your own." The lawyer, as is his custom, spoke last and said, with a look of disdain at both of his colleagues, "Who do you fellows think made chaos?" I see you think that the lawyer did it!

Your profession, in all seriousness, and I say this even with due regard for my own profession, is the most honored of all of the professions in America. Members of your profession are respected not only for their professional views but also for their opinions on civic and social questions. There is no single individual in the average American community whose views are more respected than the community doctor. You, therefore, because of the extreme respect with which you are treated, have a tremendous obligation toward the American public. You have the obligation of informing yourselves as to all types of civi and social problems. You have the tremendous challenge which you meet so wonderfully to make yourselves as professionall competent as possible and to have the best conceivable medica administration that you can. Yours is a real challenge that come because of the respect with which you are treated.

You have been having, during the past many years, one of th most difficult battles that any profession has ever had to face You are in the vanguard, I would have you remember, of th resistance that America basically feels toward the encroachin forces of socialism. Yours is a profession that has been single out. Yours has been a battle that is noteworthy and will becom more noteworthy. I was delighted to read in the papers yesterday, as I came into Los Angeles, and delighted to hear something of a repetition of it by Dr. Cline today, that you plan t conduct a more aggressive, a more positive battle, than ever before, in order to overcome the forces of paralysis which woul beset your own profession. You can never afford to be place in a completely defensive position. You can't afford to hav any governmental agency or bureau or any other group i America point to a medical problem of any significance whatsoever that you have not already thoroughly considered and com up with a definite answer.

You have issued a call for support. You have asked that th body of American public opinion place itself behind you in you effort to overcome the creeping menace that you see so clearl I appear here as the representative of the American Legion, th greatest single organization, aside from your own, which is als irrevocably opposed to the socialization of American medicin

Our interest in American medicine springs from the fact th the primary reason for our existence is in the care of those o our comrades who were wounded in one or the other of the tw great world conflicts, either mentally or physically. We rely o the untrammeled genius of American medicine to help us mak good on the pledge that we made to those comrades of ours. W naturally, therefore, resist anything that would enslave th American medical mind or anything that would even tend to cu down on the remarkable genius that has been American medicine's in days gone by. Our interest, however, it not only wit veterans' medicine. You must remember that as an organizatio of over three million members we have, because of intimat family connections, approximately fifteen million Americans wh feel the same way that we do about the subject. So if you wan a body of American public opinion with you, let me assure yo that you have it with you in the American Legion.

We, of course, have problems just as you do. On some of th problems you and we have found ourselves not necessarily in disagreement but approaching the basic problem from a slightl different tack. We would issue to you something of a warnin for such use as you might care to make of it. There are man forces operating in this country, not all of which are directl advocating the socialism of your profession which you fear s much and fight so valiantly against. Some of the forces ar camouflaged; some of the forces are such because they don realize the full impact of the proposals that they make. On of those, for example, which was made in the not too distan past was that instead of having veterans' medicine we shoul lump all of public medicine into one tremendous administrativ and professional unit.

Let me say to you in all sincerity, gentlemen, that when you have veterans' medicine and prison medicine and public medicine and medicine for all depressed classes molded into one single administrative unit, run by the United States Government, you are much further along the path of socialism than you may realize. We opposed it, in part because of our opposition to socialism. We shall continue to oppose it and hope thereby to render something of a service not only to ourselves and to our comrades but also to American medicine.

We are a scrapping organization. We have had many fights in the past. We have won most of them. We are glad to stand shoulder to shoulder with you in this scrap, and we promise any who may feel differently that this is a fight which you and we will win together for the benefit of the American people.

Report of Secretary and Action Thereon

The reference Committee on Reports of Board of Trustees and Secretary, to which the Report of the Secretary (see THE JOURNAL, Nov. 24, 1951, page 1241) was referred, approved this report and recommended "that fuller clarification of the present membership status be made and be given the widest possible circulation among the membership." The reference committee also expressed "admiration for and appreciation of the efficiency with which the Secretary has dealt with the many duties of his office throughout the year" and recorded its "gratefulness to him for the splendid cooperation which he has afforded them." The report of the reference committee was adopted.

Report of Board of Trustees

Dr. Dwight H. Murray, Chairman, presented the report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1241-1273) which, with certain exceptions, was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Your reference committee approves the report on public relaions and desires to commend the Public Relations Conference ust concluded, for the effectiveness and adequacy with which it dvanced the interests of the Association in the field of public elations. It recommends that the proceedings of said conference e transmitted to all state medical associations for their inforiation and guidance.

Your committee approves the report on the Woman's Auxiary and wishes to record its conviction that the Woman's Auxiliary is an agency of great importance and assistance to he Association. In the critical year on which we are now enterng, your committee feels that every encouragement and aid hould be given to the Woman's Auxiliary on national and local evels, that thus it may more actively function and more efficiently achieve the ends of service to the interests of medicine which it so faithfully and so enthusiastically serves.

Your committee approves the report on "You and Your A. M. A." It regards this program as a very valuable and effective means of achieving, among the membership throughout the ountry, a more complete and sympathetic understanding of all he services and benefits conferred by the American Medical Association. It applauds the Board of Trustees and the Council on Medical Service for initiating this program and making it available for incorporation in programs at state levels. It strongly urges that all state associations take advantage of "You and Your A. M. A." and arrange to present it within their state boundaries for the information of their members and for the realization of the stronger unity and cooperation which it will nevitably generate.

Your committee approves the report on THE JOURNAL and the special journals. It is the opinion of the members of your committee that the American Medical Association may justly be proud of these publications and that it owes a debt of gratitude to all who labor in their preparation and publication. It is the particular desire of your committee to emphasize the fact that any member of the Association may, at choice, substitute any one of the special journals for THE JOURNAL and to urge that the members of the Association take advantage of this privilege in furtherance of their professional interests.

Your committee approves the report on *Today's Health*, which it regards as a very valuable means of bringing the accurate views and considered advice of outstanding and dependable medical authorities to the general public in terms that it can understand concerning matters in which it is vitally interested. Your committee is impressed with the fact, so clearly called to its attention by Dr. W. W. Bauer, the able editor of *Today's Health*, that the current operational deficit of the publication would be practically eliminated if every member of our Association would become a subscriber. Therefore, your committee earnestly urges every member to subscribe to *Today's Health* and to recommend it to patients as a dependable source of sound medical information.

Your committee approves the reports on the Standard Nomenclature of Diseases and Operations, the Quarterly Cumulative Index Medicus, the American Medical Directory, the Library, the State Journal Advertising Bureau, the Bureau of Investigation and the Bureau of Exhibits. Each of these is an important agency of service, and each deserves commendation for the quality of the service which it renders. Your committee notes with pleasure the increased activities of the Bureau of Medical Economic Research.

In the name of the House of Delegates and in its own behalf, your committee wishes to avail itself of this opportunity to thank the Board of Trustees for the diligence, assiduity and efficiency with which it regularly transacts the very complicated business with which it is called on to deal at the sacrifice of so much time and effort on the part of its members.

JOINT COMMISSION FOR THE ACCREDITATION OF HOSPITALS

The Speaker referred the report on the Joint Commission for the Accreditation of Hospitals in the Report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1242-1243) to the Reference Committe on Medical Education and Hospitals.

The report of the reference committee on this portion of the report of the Board of Trustees will be found in the report of the reference committee following the Report of the Council on Medical Education and Hospitals on page 1687.

REPORT OF COUNCIL ON RURAL HEALTH

The report of the Council (Committee) on Rural Health in the report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1246-1247) was referred by the Speaker to the Reference Committee on Hygiene and Public Health.

REPORT OF REFERENCE COMMITTEE ON HYGIENE AND PUBLIC HEALTH

Dr. Charles L. Farrell, Chairman, presented the following report, which was adopted:

Your committee commends the Board of Trustees for its elevation of the Committee on Rural Health to the status of a council. Your committee had before it the report of the Council on Rural Health and commends the Council for its support of local health councils as channels for teaching health rules to the citizen and assumes that it is implicit in the thinking of the Council that the local health councils will support the establishment of, and will work through, official full time local health departments. Your reference committee also commends and strongly supports the report of the Council on Rural Health to the effect that health is more than medical care and that the individual has a responsibility not only to himself, but to his community, to promote a healthful environment. Your reference committee recommends the adoption of the report of the Council on Rural Health.

REPORT OF THE WASHINGTON OFFICE

The Speaker referred the report of the Washington Office in the report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1247-1248) to the Reference Committee on Legislation and Public Relations.

REPORT OF REFERENCE COMMITTEE ON LEGISLAT AND PUBLIC RELATIONS

Dr. R. B. Robins, Chairman, presented the f which was adopted:

Reports of the Washington Office, the Co tion (see THE JOURNAL, Nov. 24, 1951, page mittee on Medicolegal Problems (see THE JOURNAL, Nov. 24, 1951, pages 1249-1250): Your committee approves these reports as written and recommends their adoption. It commends the Washington Office and the committees for their splendid work and reports.

REPORTS OF COUNCIL ON PHARMACY AND CHEMISTRY, THE LABORATORIES, COMMITTEE ON COSMETICS, COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION, COUNCIL ON FOODS AND NUTRITION AND BUREAU OF HEALTH EDUCATION

The Speaker referred to the Reference Committee on Hygiene and Public Health portions of the Report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1250-1256 and 1264-1267) as follows: Report of the Council on Pharmacy and Chemistry, Report of the Laboratories, Report of the Committee on Cosmetics, Report of the Council on Physical Medicine and Rehabilitation, Report of the Council on Foods and Nutrition and report of the Bureau of Health Education.

REPORT OF THE REFERENCE COMMITTEE ON HYGIENE AND PUBLIC HEALTH

Dr. Charles L. Farrell, Chairman, presented the following report, which was adopted section by section and as a whole:

Your committee had before it the report of the Council on Pharmacy and Chemistry. It directs your attention with commendation to the fact that the acceptance of products has been materially expedited in recent years. With the rapid advancement of chemotherapy, the annual publication of "New and Non-Official Remedies" is worthy of special commendation. Your reference committee recommends the adoption of the report of the Council on Pharmacy and Chemistry.

Your reference committee received the report of the Laboratories. The report is excellent and we recommend its approval.

Your committee received the report of the Committee on Cosmetics and believes the committee deserves special commendation for its activities and accomplishments in this highly important field. Adoption of the report is recommended.

Your committee reviewed the report of the Council on Physical Medicine and Rehabilitation and notes with regret the death of two members, and shares with the Council its sense of loss. Your committee notes with interest the activity of this highly important Council during the past year, and recommends the adoption of the report.

Your reference committee reviewed the report of the Council on Foods and Nutrition and heartily approves the report. It notes with interest the activity of the Council regarding legislation affecting food additives. It recognizes the difficulties inherent in this problem and endorses the action of the Council in supporting the principle of H. R. 3257. Your committee recommends the adoption of the report.

Your reference committee considered the multi-faceted report of the Bureau of Health Education and notes with interest and gratification the varied activities and progress of this Bureau. The Bureau deserves continued support for its excellent work. The committee notes with pleasure that *Today's Health* has grown in stature and importance, and recommends that every doctor keep it in his waiting room. In consideration of the basic responsibility of state health departments for promulgating measures for the health protection of their citizens, your committee recommends the addition of the Association of State and Territorial Health Officers to the list of organizations whose joint opinion as to the appropriate age at which the various immunizations should be administered is proposed to be secured by the National Congress of Parents and Teachers Advisory Committee on Health and Summer Round-Up in cooperation with the Bureau of Health Education. Your committee recommends the adoption of the report as amended.

REPORT OF COUNCIL ON INDUSTRIAL HEALTH

The report of the Council on Industrial Health in the report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1256-1258) was referred by the Speaker to the Reference Committee on Industrial Health.

REPORT OF REFERENCE COMMITTEE ON INDUSTRIAL HEALTH

Dr. Millard D. Hill, Chairman, presented the following report, which was adopted:

Your committee was impressed with the wide range of activities engaged in by the Council on Industrial Health and with the importance of certain services as they relate to defense industry. The recently prepared reports on integration of industrial medical services with community civil defense and on industrial manpower conservation met important current needs and should, in our opinion, be widely distributed to industrial management, the medical profession and official agencies dealing with federa contracts for defense material.

The committee strongly approves of the annual conferenc between representatives of the state medical association committees on industrial health and the Council at the time of th Annual Congress on Industrial Health. These meetings, togethe with the field services and the distribution of news letters, shoul promote the development of local industrial health services alon approved lines. Your committee particularly commends th joint program of education being developed between the Counci and the American Academy of General Practice.

Especial attention was paid to the proposed "Essentials o Medical Nursing Services in Industry." In the opinion of you committee this statement fills a long-felt want and should g far to define and protect the status of industrial nurses, particularly those without direct medical supervision. The committee recommends that the Council forward its work with th nurses and industrial physicians to the end that these principle receive wide distribution and acceptance.

In many of its activities the Council on Industrial Health ha found it necessary and desirable to seek consultation in speci fields dealing with noise, the older worker, chronic illnes human relations, workmen's compensation, atmospheric pollution, environmental hygiene and rehabilitation. The committee recommends the need to maintain medical interest and leadership in these fields involving as they do contacts and liaiso with representative groups in the profession of engineerin hygiene, sociology and psychiatry.

The committee also endorses the efforts to elevate standard of graduate training now being worked out with profession schools and standardizing agencies.

REPORT OF COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

The Speaker referred the report of the Council on Nation Emergency Medical Service in the report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1259-1260) to th Reference Committee on Medical Military Affairs.

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. Homer L. Pearson Jr., Chairman, presented the followin report, which was adopted:

The Reference Committee on Medical Military Affairs had fo consideration the report of the Council on National Emergenc Medical Service. All members of the committee were prese together with the consultants from the military services. Als present were the Chairman and Secretary of the Council o National Emergency Medical Service, some members of th Board of Trustees and others interested in matters before th committee. All entered freely into the discussions.

The report of the Council on National Emergency Medica Service was thoroughly studied and discussed. Your committe commends the Council on the fine work it is doing in militar and selective service activities, strongly supports the continuation of the policy of deferment of properly qualified pre-professional and professional students of medicine, dentistry an veterinary medicine and recommends that the Board of Trustee and Council make recommendations to this effect to the appropriate agencies.

Discussion of that portion of the report dealing with civi defense brought out that the nation as a whole was some year behind in its overall program for civil defense and your committee looks on this with some concern. It is therefore recom mended by this committee that representations be made by the Council and the Board of Trustees to appropriate agencies of government that there be closer participation on the part of the military services in civil defense planning.

Your committee notes the cordial appreciation expressed by the Surgeons General for the vastly improved relationships between the military medical services, the various advisory committees and the Council on National Emergency Medical Service of the American Medical Association and recommends that this activity be continued and further enlarged.

REPORT OF BUREAU OF LEGAL MEDICINE AND LEGISLATION

The report of the Bureau of Legal Medicine and Legislation in the report of the Board of Trustees (see THE JOURNAL, Nov. 24, 1951, pages 1260-1264) was referred by the Speaker to the Reference Committee on Legislation and Public Relations.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. R. B. Robins, Chairman, presented the following report, which was adopted:

Report of the Bureau of Legal Medicine and Legislation: Your committee approves this report and recommends its adoption. The fine work of the Bureau is noted with appreciation.

REPORT OF ASSISTANT TO THE GENERAL MANAGER, DEPARTMENT OF PUBLIC RELATIONS

The Speaker referred the report of the Assistant to the General Manager, Department of Public Relations (see THE JOURNAL, Nov. 24, 1951, pages 1271-1272) to the Reference Committee on Legislation and Public Relations.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. R. B. Robins, Chairman, presented the following report, which was adopted:

Report of the Assistant to the General Manager and Department of Public Relations: Your committee approves this report with special commendation and recommends its adoption.

Supplementary Report of the Board of Trustees

Dr. Dwight H. Murray, Chairman, presented the supplementary report of the Board of Trustees, the portions of which the Speaker referred to reference committees as follows: Joint Commission for Accreditation of Hospitals and Relation of Physicians and Hospitals to the Reference Committee on Medical Education and Hospitals; Resolution on Distribution of Medical Care to the Reference Committee on Insurance and Medical Service; Poisonous Household Products to the Reference Committee on Hygiene and Public Health; Funds for Medical Research and Resolution on Costs of All Technical and Professional Training to the Reference Committee on Miscellaneous Business, and Resolution on Publicizing American Medicine to the Reference Committee on Legislation and Public Relations. The Speaker delayed referral of the portion on the Coordinating Committee until the full report of that committee was received, and declared that the item on the Resolution on Free Choice of Physicians for Federal Employees was informative and did not require action or referral.

Joint Commission for the Accreditation of Hospitals: The Board of Trustees wishes to report that the following physicians have been selected to represent the American Medical Association on the Joint Commission for the Accreditation of Hospitals:

Dr. Gunnar Gundersen and Dr. Stanley Truman for terms of three years.

Dr. Dwight H. Murray and Dr. Herman G. Weiskotten for terms of two years.

Dr. Rolland J. Whitacre and Dr. Julian P. Price for terms of one year.

The report of the Reference Committee on Medical Education and Hospitals, to which this portion of the supplementary report of the Board of Trustees was referred, will be found in the reference committee report following the report of the Council on Medical Education and Hospitals on the same subject on page 1687.

Resolution on Distribution of Medical Care: In accordance with the directive of the House of Delegates at its meeting in June 1951, the Board of Trustees referred to the Committee to Study the Twelve Point Program the resolution on distribution of medical care introduced by Dr. William F. Costello of New Jersey. The committee submitted the following report, which is being transmitted to the House of Delegates with the approval of the Board of Trustees:

The Committee to Study the Twelve Point Program met in New York City on Oct. 27, 1951, for the purpose of holding a hearing on the New Jersey resolution, at which representatives from the medical societies of New Jersey, New York and North Carolina were present.

The committee was impressed by the energy and devotion with which the New Jersey society had been attempting to solve some of the difficult problems of medical care. After much discussion of the several proposals contained in the resolution, the fields of disagreement were mentioned, i. e.: (a) That the American Medical Association limit its support to the non-profit medical service plans; (b) that the government, at every level, should promote a program of medical care protection for its own employees by assuming a part or all of the cost of enrolment in voluntary non-profit payment plans; (c) that consideration be given to providing an overall inclusive service for non-chronic conditions and with no income limitations; (d) that the government should purchase policies in non-profit medical service agencies for the care of the medically indigent not on relief rolls; (e) that the possibility of securing the assignment of U. S. Public Health Service physicians in sparsely settled areas or to other areas not properly served by physicians be explored; (f) that the American Medical Association support a program of government subsidy where needed to assist qualified individuals in obtaining professional training, and to expand professional training facilities either by addition to existing schools or the establishment of new schools.

The Committee to Study the Twelve Point Program finds itself unable, therefore, to endorse the New Jersey proposals as now written and recommends that amended proposals be submitted by the New Jersey delegates to the House of Delegates of the American Medical Association for future consideration and action by the House of Delegates.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Raymond M. McKeown, Chairman, presented the following report, which was adopted:

The supplementary report of the Board of Trustees dealing with the cooperative studies now in process between the Medical Society of New Jersey and the special cooperating study committee established by the Trustees goes far to reaffirm our confidence in cooperative effort. The committee established by the Board of Trustees to study the Twelve Point Program presented by New Jersey reported itself unable to endorse the New Jersey proposals as now written and recommended that amended proposals as approved by the New Jersey house of delegates be submitted to the House of Delegates of the American Medical Association in the future for consideration and action. The subject was ably presented by Dr. Hamilton of the Board of Trustees as well as Dr. W. F. Costello of New Jersey.

Your committee, after due consideration, approves the supplementary report of the Board of Trustees dealing with the New Jersey proposals with corrections as requested.

Poisonous Household Products: In view of the fact that infants and small children may suffer serious injury or death from accidental ingestion of such commonly used household articles as carbon tetrachloride dry cleaning fluid, methyl salicylate (oil of wintergreen) and silver polishes containing cyanide, all of which, though poisonous, are not labeled as such, and that new cleaning products and other household preparations are being placed on the market each year, some of which may be poisonous and yet not be so labeled because they do not fall under the Federal Caustic Poisons Act, the Board of Trustees is planning to take appropriate steps to warn the public, and parents of young children in particular, of the dangerous nature of household products known to be poisonous but not so labeled, by publishing such information in *Today's Health* and in other publications and pamphlets of the Association and to conduct a survey of deaths of small children and infants resulting from ingestion of household products not labeled as poisonous. The Board of Trustees reports this matter to the House of Delegates and requests the concurrence of the House in the development of this project.

Report of Reference Committee on Hygiene and Public Health

Dr. Charles L. Farrell, Chairman, presented the following report, which was adopted:

Your reference committee strongly endorses the supplementary report of the Board of Trustees on Poisonous Household Products and recommends concurrence.

Relation of Physicians and Hospitals: After exhaustive study and careful consideration of the several reports previously rendered relative to the relation of physicians and hospitals, the Board is submitting for consideration of the House of Delegates a substitute report, as follows:

Relation of Physicians and Hospitals

On June 9, 1949 the House of Delegates approved a Report of the Committee on Hospitals and the Practice of Medicine as revised by the reference committee; in December, 1949 the House by motion reaffirmed the principles of such report but re-referred it to the original committee for revision; in June, 1950 the House of Delegates approved, as amended by the reference committee, the further report of the Committee on Hospitals and the Practice of Medicine and in December, 1950 an Addendum to such report recommended by the Judicial Council.

The Board of Trustees has had these reports under study for the past year and is of the opinion that they need clarification. Accordingly, the Board of Trustees recommends that there be substituted for all those reports referred to in the first paragraph hereof the following statement to be known as:

GUIDES FOR CONDUCT OF PHYSICIANS IN RELATIONSHIPS WITH INSTITUTIONS

So far as it can be determined on the basis of study made by the Bureau of Legal Medicine and Legislation of the American Medical Association, as a matter of law the corporate practice of medicine is illegal in most states. In almost all instances the classic example given by the courts of the type of corporate practice of a profession that is illegal is the instance in which a corporation hires a professional man and then sells his services to the public on a fee basis for the profit of the corporation. Such exceptions as there are refer to statutory legislation in several states permitting certain modifications of this general law. It must also be remembered that fee splitting with a corporation is just as unethical as fee splitting with another physician.

In addition to being guided by the laws of the various states, physicians in their relationships with hospitals must be guided by the Principles of Medical Ethics of the American Medical Association. Those sections of the Principles which have a distinct bearing on these relationships are as follows:

> Chapter I, Sec. 3. "Groups and Clinics.—The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual physicians, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession."
>
> Chapter III. Article VI. Sec. 2. "Conditions of Medical Practice.—A physician should not dispose of his service under conditions that make it impossible to render adequate service to his patients, except under circumstances in which the patients concerned might be deprived of immediately necessary care."
>
> Chapter III. Article VI. Sec. 3. "Contract Practice.—Contract practice as applied to medicine means the practice of medicine under an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization, political subdivision or individual, whereby partial or full medical services are provided for a group or class of individuals on the basis of a fee schedule, or for a salary or for a fixed rate per capita.
>
> "Contract practice *per se* is not unethical. Contract practice is unethical if it permits of features or conditions that are declared unethical in these Principles of Medical Ethics or if the contract or any of its provisions causes deterioration of the quality of the medical services rendered."
>
> Chapter III. Article VI. Sec. 6. "Purveyal of Medical Service.—A physician should not dispose of his professional attainments or services to any hospital, lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the services of the physician for the financial profit of t agency concerned. Such a procedure is beneath the dignity of profession practice and is harmful alike to the profession of medicine and the w fare of the people."
>
> In conclusion, the Principles of Medical Ethics states: "These princip of medical ethics have been and are set down primarily for the good the public and should be observed in such a manner as shall merit a receive the endorsement of the community . . ."

The duties of the Judicial Council are specified in the Con tution and By-Laws and among those duties the following prescribed:

> "The Council shall have jurisdiction on all questions of medical et and the interpretation of the laws of the Association.
>
> "The Council at its discretion may investigate general professional c ditions and all matters pertaining to the relations of physicians to another and to the public, and may make such recommendations to House of Delegates or the constituent associations as it deems necess
>
> "The Council shall have authority to request the President to app investigating juries to which it may refer complaints or evidence of ethical conduct which in its judgment are of greater than local conc Such investigating juries, if probable cause for action be shown, s submit formal charges to the President, who shall appoint a prosec to prosecute such charges against the accused before the Judicial Cou in the name and on behalf of the American Medical Association. Council may acquit, admonish, suspend or expel the accused."

The primary obligation of both physicians and hospitals i serve the best interest of the patients. The decision as to ethical or unethical nature of practice must be based on the mate effect for good or ill on the public as a whole. All of various questions involved in the relationship between physici and hospitals, both legal and ethical, particularly questi dependent on local conditions, must be considered in the instance at the local level because of the various differer which of necessity exist in the many sections of the country.

One of the factors that have aggravated physician-hosp relationship is the inclusion of medical services in the contr of voluntary hospital service plans. The medical professio fostering voluntary health insurance, and we believe that noth should be done to disturb this very important and essential gram. However, the American Medical Association has r firmed many times through its then Bureau of Medical E nomics, its Judicial Council and the House of Delegates principle that hospital service plans should exclude all med services, and the contract provisions of such plans should limited exclusively to hospital services. At the same time, that there would be no misunderstanding as to which servi should or should not be included, the House of Delegates stated that ". . . if hospital service is limited to include o hospital room accommodations, such as bed, board, operat room, medicine, surgical dressings and general nursing care, distinction between hospital service and medical service will clear." (Proceedings of the San Francisco Session of the Ho of Delegates, 1938, p. 31.) Past actions of the House of D gates give every reason to reiterate that radiology, anesthesiolo pathology and physiatry constitute the practice of medicine.

In order to initiate a method for remedying this situation, i recommended that Blue Shield and Blue Cross be requested cooperate to the extent of writing all new contracts in suc manner that Blue Shield will cover insurable medical servi and Blue Cross will cover insurable hospital services. It is ho that the professional and hospital authorities and the volunt prepayment plans will cooperate in furthering these reco mendations.

Since the physician and hospital are interdependent, it is cumbent on both to be interested in all phases of their scient and financial relationships. This means that the professional s of the hospital has very definite responsibilities toward not o other members of the professional staff, whether active or co tesy, but also toward hospital management. The recommen tions of the staff concerning medical matters are usually accep by the management of the hospital through its board of ma agers or trustees. It must also be remembered that to be approv for residencies in specialties by the American Medical Assoc tion and the American College of Surgeons, certain requireme are mandatory to the institution, among them adequate path logic and radiologic coverage. As a rule, the staff of a hospi elects an executive committee or works under an appoint executive committee to advise the lay officers of the instituti on purely professional matters, and recommends who may

may not use the institution for professional work. Unfortunately, in many instances, the financial problems of the lay hospital management have been no affair of the staff or of its professional executive committee. This is wrong and probably the cause of most of the differences of opinion between physicians and hospital management. The financial problems of an institution in which a physician does his professional work are definitely of importance to him and to the professional staff, and the proper consideration must be given to these problems if the hospital is to work efficiently and remain the workshop of the physician, and without proper facilities the services rendered to the public are in jeopardy and these public services are the all-important function of both hospital and staff.

Every professional man on the appointed staff should have a voice in the professional management of the institution. The pathologist, roentgenologist, anesthesiologist and physiatrist, as well as the other professional staff members, should have equal standing as active members of the staff with all the rights and privileges pertaining to other members of the staff of equal standing. The chiefs of these departments should be nominated and appointed in the same manner as are the chiefs of other major departments in the same hospital.

The revised Principles of Medical Ethics has been written with all of these various factors in mind and is broad enough to cover all possible ethical physician-hospital relationships. The Constitution and By-Laws of the American Medical Association distinctly covers methods of procedure for all persons who have a complaint so that they may approach the Judicial Council. The functions of that Council are specifically delineated.

> "In the event of a controversy between physician and physician, or physician and hospital management, on these problems, it is recommended that, since local conditions must be taken into consideration, these problems be resolved insofar as possible at the local level.
>
> "There can be no exploitation of the doctor or of the hospital if everyone concerned in management and on the professional staff will work together to supply the greatest possible good quality medical and hospital services to the public. In any given controversy, every effort should first be made to settle the matter at the staff-management level. In case of failure to settle the controversy at this level, assistance of the county medical society should be requested. If, then, it cannot be resolved it should be submitted to a committee of the state medical association for advice and recommendation. If problems cannot be solved at the staff-management level, through the county medical society, or through the state medical association, the Constitution and By-Laws of the American Medical Association provides that ". . . the (Judicial) Council, at its discretion, may investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, and may make such recommendations to the House of Delegates or the constituent associations as it deems necessary."

To implement the settlement of such controversies, it is recommended that each component medical society and each constituent state and territorial medical association appoint a Committee on Hospital and Professional Relations. This committee should be available to receive complaints from any physician, hospital, medical organization, or any other interested person or group with reference to professional or economic relations existing between doctors of medicine and hospitals. On receipt of such complaint by such a committee the matter should be investigated and acted on in such manner as will best effect adjustment of the complaint.

Another approach that should not be neglected in activating this report is that of the local and state hospital associations. Most of the states and many communities have hospital associations providing direct representation for the hospitals within their areas. It seems reasonable to assume that state medical associations and component county medical societies could well effect liaison with these organizations in the settlement of problems involving physician relationships.

In summary, the following general principles are suggested to individual physicians, county medical societies, and state medical associations as a basis for adjusting controversies, these principles, however, to be qualified to the extent required by the applicability of one or more of the factors heretofore mentioned:

1. A physician should not dispose of his professional attainments or services to any hospital, corporation or lay body by whatever name called or however organized under terms or conditions which permit the sale of the services of that physician by such agency for a fee.

2. Where a hospital is not selling the services of a physician, the financial arrangement if any between the hospital and the physician properly may be placed on any mutually satisfactory basis. This refers to the remuneration of a physician for teaching or research or charitable services or the like. Corporations or other lay bodies properly may provide such services and employ or otherwise engage doctors for those purposes.

3. The practice of anesthesiology, pathology, physical medicine and radiology are an integral part of the practice of medicine in the same category as the practice of surgery, internal medicine or any other designated field of medicine.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. Joseph D. McCarthy, Chairman, presented the following report, which was adopted:

The report of the Hess Committee has been before the House of Delegates, the Board of Trustees and the Council on Medical Service from time to time. It is the hope of your reference committee that finally the American Medical Association has a draft which will be acceptable to all concerned. Your committee recognizes that all the members of the House have not had the opportunity to read the Board of Trustees' revised report inasmuch as up to this morning it was not available. This report should be read in toto because of its import. Only in this way will the members of the House have full knowledge of its contents, important to each of you, yes, but much more important that all be able to pass along to their confreres the exact intent.

In the opinion of your committee, the members of the American Medical Association, medical schools, the American Hospital Association, the hospital boards controlling hospital directives now have a code of principles which should be a guiding light for physician-hospital relations. After all, amicable relationships of this character can be settled at the local level in the great majority of instances. Should this be impossible, physicians do have channels up to the Judicial Council of the American Medical Association through which the disagreement may be funneled. Modes of procedure so cited are forgotten and thereby too often the issue is forgotten or lost by default.

For your information there were no objections to the adoption of this pronouncement by members of the American Medical Association attending the reference committee hearing.

Your committee unanimously approves this revised pronouncement of the Board of Trustees, suggests that the principles in the future be referred to as "Relation of Physicians and Hospitals" and that the House of Delegates commend the Board for its arduous study and constructive recommendations relative to the revised "Code."

Funds for Medical Research: Surveys of the sources of money for medical research which have been conducted to date have given only a partial picture of the funds available, have concentrated primarily on governmental grants and have ignored, for the most part, contributions of free time by scientists and gifts of private individuals. Many scientists are alarmed at the lack of funds for free research, that is, funds for scientific research not connected with any particular disease such as cancer, multiple sclerosis and so forth. This lack needs to be pointed up if it indeed exists. Data uncovered by a comprehensive survey of all time and money being given for medical research would provide valuable guidance to philanthropic institutions and individuals in the most useful giving of funds for medical research.

In view of these facts, the Board of Trustees through its Committee on Research plans to conduct a preliminary survey of (1) the sources of funds, both public and private, now available for medical research; (2) the amount of free time being donated to medical research, and (3) the fields of medical research receiving funds and in what proportion.

The Board reports this matter to the House of Delegates and requests concurrence in this project.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Warren W. Furey, Chairman, presented the following report, which was adopted:

Your committee heartily concurs in the recommendation of the Board of Trustees relative to this matter and recommends its approval.

survey of deaths of small children and infants resulting from ingestion of household products not labeled as poisonous. The Board of Trustees reports this matter to the House of Delegates and requests the concurrence of the House in the development of this project.

REPORT OF REFERENCE COMMITTEE ON HYGIENE AND PUBLIC HEALTH

Dr. Charles L. Farrell, Chairman, presented the following report, which was adopted:

Your reference committee strongly endorses the supplementary report of the Board of Trustees on Poisonous Household Products and recommends concurrence.

Relation of Physicians and Hospitals: After exhaustive study and careful consideration of the several reports previously rendered relative to the relation of physicians and hospitals, the Board is submitting for consideration of the House of Delegates a substitute report, as follows:

RELATION OF PHYSICIANS AND HOSPITALS

On June 9, 1949 the House of Delegates approved a Report of the Committee on Hospitals and the Practice of Medicine as revised by the reference committee; in December, 1949 the House by motion reaffirmed the principles of such report but re-referred it to the original committee for revision; in June, 1950 the House of Delegates approved, as amended by the reference committee, the further report of the Committee on Hospitals and the Practice of Medicine and in December, 1950 an Addendum to such report recommended by the Judicial Council.

The Board of Trustees has had these reports under study for the past year and is of the opinion that they need clarification. Accordingly, the Board of Trustees recommends that there be substituted for all those reports referred to in the first paragraph hereof the following statement to be known as:

GUIDES FOR CONDUCT OF PHYSICIANS IN RELATIONSHIPS WITH INSTITUTIONS

So far as it can be determined on the basis of study made by the Bureau of Legal Medicine and Legislation of the American Medical Association, as a matter of law the corporate practice of medicine is illegal in most states. In almost all instances the classic example given by the courts of the type of corporate practice of a profession that is illegal is the instance in which a corporation hires a professional man and then sells his services to the public on a fee basis for the profit of the corporation. Such exceptions as there are refer to statutory legislation in several states permitting certain modifications of this general law. It must also be remembered that fee splitting with a corporation is just as unethical as fee splitting with another physician.

In addition to being guided by the laws of the various states, physicians in their relationships with hospitals must be guided by the Principles of Medical Ethics of the American Medical Association. Those sections of the Principles which have a distinct bearing on these relationships are as follows:

> Chapter I, Sec. 3. "Groups and Clinics.—The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual physicians, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession."
>
> Chapter III. Article VI. Sec. 2. "Conditions of Medical Practice.—A physician should not dispose of his service under conditions that make it impossible to render adequate service to his patients, except under circumstances in which the patients concerned might be deprived of immediately necessary care."
>
> Chapter III. Article VI. Sec. 3. "Contract Practice.—Contract practice as applied to medicine means the practice of medicine under an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization, political subdivision or individual, whereby partial or full medical services are provided for a group or class of individuals on the basis of a fee schedule, or for a salary or for a fixed rate per capita.
>
> "Contract practice *per se* is not unethical. Contract practice is unethical if it permits of features or conditions that are declared unethical in these Principles of Medical Ethics or if the contract or any of its provisions causes deterioration of the quality of the medical services rendered."
>
> Chapter III. Article VI. Sec. 6. "Purveyal of Medical Service.—A physician should not dispose of his professional attainments or services to any hospital, lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the services of the physician for the financial profit of the agency concerned. Such a procedure is beneath the dignity of professional practice and is harmful alike to the profession of medicine and the welfare of the people."
>
> In conclusion, the Principles of Medical Ethics states: "These principles of medical ethics have been and are set down primarily for the good of the public and should be observed in such a manner as shall merit and receive the endorsement of the community . . ."

The duties of the Judicial Council are specified in the Constitution and By-Laws and among those duties the following is prescribed:

> "The Council shall have jurisdiction on all questions of medical ethics and the interpretation of the laws of the Association.
>
> "The Council at its discretion may investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, and may make such recommendations to the House of Delegates or the constituent associations as it deems necessary.
>
> "The Council shall have authority to request the President to appoint investigating juries to which it may refer complaints or evidence of unethical conduct which in its judgment are of greater than local concern. Such investigating juries, if probable cause for action be shown, shall submit formal charges to the President, who shall appoint a prosecutor to prosecute such charges against the accused before the Judicial Council in the name and on behalf of the American Medical Association. The Council may acquit, admonish, suspend or expel the accused."

The primary obligation of both physicians and hospitals is to serve the best interest of the patients. The decision as to the ethical or unethical nature of practice must be based on the ultimate effect for good or ill on the public as a whole. All of the various questions involved in the relationship between physicians and hospitals, both legal and ethical, particularly questions dependent on local conditions, must be considered in the first instance at the local level because of the various differences which of necessity exist in the many sections of the country.

One of the factors that have aggravated physician-hospital relationship is the inclusion of medical services in the contracts of voluntary hospital service plans. The medical profession is fostering voluntary health insurance, and we believe that nothing should be done to disturb this very important and essential program. However, the American Medical Association has reaffirmed many times through its then Bureau of Medical Economics, its Judicial Council and the House of Delegates the principle that hospital service plans should exclude all medical services, and the contract provisions of such plans should be limited exclusively to hospital services. At the same time, so that there would be no misunderstanding as to which services should or should not be included, the House of Delegates has stated that ". . . if hospital service is limited to include only hospital room accommodations, such as bed, board, operating room, medicine, surgical dressings and general nursing care, the distinction between hospital service and medical service will be clear." (Proceedings of the San Francisco Session of the House of Delegates, 1938, p. 31.) Past actions of the House of Delegates give every reason to reiterate that radiology, anesthesiology, pathology and physiatry constitute the practice of medicine.

In order to initiate a method for remedying this situation, it is recommended that Blue Shield and Blue Cross be requested to cooperate to the extent of writing all new contracts in such a manner that Blue Shield will cover insurable medical services and Blue Cross will cover insurable hospital services. It is hoped that the professional and hospital authorities and the voluntary prepayment plans will cooperate in furthering these recommendations.

Since the physician and hospital are interdependent, it is incumbent on both to be interested in all phases of their scientific and financial relationships. This means that the professional staff of the hospital has very definite responsibilities toward not only other members of the professional staff, whether active or courtesy, but also toward hospital management. The recommendations of the staff concerning medical matters are usually accepted by the management of the hospital through its board of managers or trustees. It must also be remembered that to be approved for residencies in specialties by the American Medical Association and the American College of Surgeons, certain requirements are mandatory to the institution, among them adequate pathologic and radiologic coverage. As a rule, the staff of a hospital elects an executive committee or works under an appointed executive committee to advise the lay officers of the institution on purely professional matters, and recommends who may or questioned the right of physicians to deduct entertainment ex- nses for income tax purposes, contending that such expenditures are unethical. The Council is informed that the deducti- ility of similar expenditures has been permitted where the payer is a lawyer. The Council knows of no reason why a fferent ruling should apply when the taxpayer is a physician. The Council expresses no opinion with respect to the legal pects of the question but does wish to recall to the attention the House of Delegates a statement that was published in e Journal for Feb. 3, 1951, beginning on page 323, which s prepared by the Bureau of Legal Medicine and Legislation d dealt with the physician's Federal income tax. In that state- nt appears references to instances in which the deductibility expenses incurred for entertainment purposes has been per- tted when such expenses were incurred by an actor and by a yer. The Bureau of Legal Medicine and Legislation is receiv- an increasing number of inquiries from physicians whose ductions of entertainment expenses have been questioned. This rifying statement by the Council may be of much help to se physicians.

DEPENDENCE OF PHYSICIANS ON EACH OTHER

Sections 1 and 2 of Article II, Chapter III of the Principles Medical Ethics, entitled Professional Services of Physicians to ch Other, read as follows:

> Dependence of Physicians on Each Other. Section 1.—As a general , a physician should not attempt to treat members of his family or self. Consequently, a physician should cheerfully and without recom- se give his professional services to physicians or their dependents if are in his vicinity.
>
> Compensation for Expenses. Sec. 2.—When a physician from a dis- e is called to advise another physician about his own illness or about of one of his family dependents, and the physician to whom the ice is rendered is in easy financial circumstances, a compensation that at least meet the traveling expenses of the visiting physician should proffered him. When such a service requires an absence from the stomed field of professional work of the visitor that might reasonably xpected to entail a pecuniary loss, such loss may, in part at least, be ided for in the compensation offered."

f a physician or his dependents have insurance providing bene- for medical or surgical care, then in the opinion of the Ju- al Council a physician who renders such service may accept insurance benefits without violating the provisions of Chap- III, Article II, Sections 1 and 2 of the Principles of Medical ics above quoted.

APPEAL PROCEDURE

he Council would like to emphasize the details of the pro- ure to be followed in effecting appeals authorized under apter X, Section 4 (I) of the By-Laws. This emphasis is ught to be advisable at this time in order that delays in con- ration of appeal cases be reduced to a minimum. The atten- of members is redirected to the fact that in considering cases perly appealable, the Council may consider only questions law and procedure, not of fact. Before the Council may as- e jurisdiction of a case, evidence must be submitted that the rieved member has exhausted all procedures available to him ler the provisions of the constitutions and by-laws of the com- ent and constituent associations of which he is a member. effecting an appeal, the aggrieved member must file with the airman of the Council six copies of an appeal statement, or ef, setting forth clearly the basis advanced by the member as reason why the Council should assume jurisdiction and take ion. A copy of this statement or brief must be forwarded at same time to the appropriate officer of the constituent asso- tion from the decision of which the appeal is taken. The pres- By-Laws provide that an appeal can be taken at any time thin six months "immediately following the date of decision the constituted authority of a constituent association." The uncil feels that it would serve to expedite appeal procedure the By-Laws were amended to require that the appeal be ected within a period of sixty days rather than six months. e Council also feels that justice will be better served if, on an peal being perfected, the decision of the constituent association re stayed pending the final decision of the Council. The Coun- hopes to have published in The Journal in an early issue a tailed statement relative to procedures to be followed in ap- als to the Council.

DR. JOHN H. O'SHEA

It is again our sad duty to report the death of a former member of the Council. Dr. John H. O'Shea of Spokane, Wash., was elected to the Judicial Council in 1933 and served continuously until 1948 when he suffered a cerebral accident. Until his illness he was constant in his attendance at our meetings. Realizing that he would never be able to resume his active work, he resigned from the Council in 1949. Dr. O'Shea was always intensely interested in the work of the Council and faithful in discharging all of his duties. His long service gave him a valuable insight into the principles of ethics, the laws of our Association and its many traditions. He was a man of substance, fine character and high ideals. Dr. O'Shea brought to the deliberations of the Council an atmosphere of the forward characteristics of the great northwest section of our country. He was charitable in his judgment but never compromised with willful wrong-doing. In his long service he contributed greatly to the work of the Council and in his passing our members feel a great sense of personal loss.

Respectfully submitted,

Edward R. Cunniffe, Chairman.
H. L. Pearson Jr.
J. B. Lukins.
Louis A. Buie.
Walter F. Donaldson.

Report of Reference Committee on Miscellaneous Business

Dr. Warren W. Furey, Chairman, presented the following report, which was adopted:

Your reference committee notes with approval the accomplishments of the Judicial Council and commends its members for their effort. The report was discussed and considered favorably. Your reference committee recommends approval of the sections of the report entitled Entertainment Expenses and Dependence of Physicians on Each Other. Your committee concurs in the recommendations of the Judicial Council with reference to Appeal Procedure and further recommends that this portion of the report be referred to the Committee on Constitution and By-Laws for implementation. Your reference commmittee notes with extreme satisfaction the dignified memorial to Dr. John H. O'Shea and heartily concurs in the sentiments expressed. It recommends approval.

The Vice Speaker stated that, in accordance with the recommendation of the reference committee, the portion of the report of the Judicial Council dealing with Appeal Procedure was referred to the standing Committee on Constitution and By-Laws.

Report and Supplementary Report of Council on Medical Education and Hospitals

Dr. H. G. Weiskotten, Chairman, presented the report of the Council on Medical Education and Hospitals (see The Journal, Nov. 24, 1951, pages 1273-1278) and a mimeographed supplementary report which dealt exclusively with the Revised Essentials of an Acceptable Medical School. (Because of limitation of available space, the supplementary report is not submitted herewith; copies will be ready for distribution within a short time.) The report and supplementary report of the Council were referred to the Reference Committee on Medical Education and Hospitals.

Report of Reference Committee on Medical Education and Hospitals

Dr. Joseph D. McCarthy, Chairman, submitted the following report, which was adopted section by section and as a whole, as amended:

Accreditation of Hospitals: A portion of the report of the Board of Trustees was assigned to your reference committee, it having to do with a report on the Joint Commission for the Accreditation of Hospitals. In order that this subject may be considered in toto by the House of Delegates at this time, your committee will combine the Board's recommendations along with that portion of the report of the Council on Medical Education and Hospitals entitled "Hospital Standardization" and a portion of the supplementary report of the Board of Trustees.

Coordinating Committee: Dr. Elmer L. Henderson, Chairman of the Coordinating Committee for the National Education Campaign, submitted a report from his Committee to the Board of Trustees on December 3. This report was approved by the Board of Trustees and Dr. Henderson has been requested to present it to the House of Delegates.

The Board of Trustees voted to continue for another year the present Coordinating Committee, with the addition of Dr. John W. Cline, President of the American Medical Association, as a member.

The report of the Reference Committee on Legislation and Public Relations on this portion of the supplementary report of the Board of Trustees will be found following the Report of the Coordinating Committee on page 1693.

Resolution on Free Choice of Physicians for Federal Employees: With reference to the Resolution on Free Choice of Physicians for Federal Employees, which was adopted by the House of Delegates in June, 1949, the Board of Trustees wishes to report that several meetings have been held between Dr. J. Stanley Kenney of New York, who introduced the resolution, and representatives of the Association's Council on Industrial Health and of the New York Employees' Compensation Commission. After much discussion, it was agreed by all those who participated in the conferences that to press for the principle involved, by the approach mentioned in the resolution, would be unwise, and it was recommended that no action be taken at this time for the accomplishment of the resolution.

Resolutions on Publicizing American Medicine: In accordance with the Resolutions on Publicizing American Medicine, introduced by Dr. Edward P. Flood of New York in June 1951, the Department of Public Relations, to which the resolutions were referred, has prepared 26 slogans which are available to physicians for use in advertising space purchased in journals, annuals and programs of educational, welfare, religious and eleemosynary groups. The headquarters office will be glad to supply these slogans on request.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. R. B. Robins, Chairman, presented the following report, which was adopted:

Resolutions on Publicizing American Medicine: Your reference committee approves these resolutions and recommends their adoption.

Resolution on Costs of all Technical and Professional Training: In Atlantic City in June 1951 Dr. E. F. Hoffman of California presented a resolution relative to the amortization for federal income tax purposes of the costs of all technical and professional training. This resolution was submitted to the Bureau of Legal Medicine and Legislation and the Council on Medical Education and Hospitals, and the attached memorandum has been furnished the Board of Trustees by the Director of the Bureau of Legal Medicine and Legislation. It is submitted to the House of Delegates for such consideration as it may think necessary in the premises.

There was referred for comment to the Council on Medical Education and Hospitals and to the Bureau of Legal Medicine and Legislation by the Executive Committee of the Board of Trustees a resolution presented to the House of Delegates at the Atlantic City, 1951, meeting by Dr. E. F. Hoffman of California relative to the amortization for federal income tax purposes of "*the costs of all technical and professional training.*" The resolution calls attention to the fact that business concerns may annually depreciate capital assets for income tax purposes and purposes in effect that the cost of professional education received by physicians and others *in a like category be considered a capital asset* to be amortized for tax purposes.

Only one question was submitted to the Council and to the Bureau for comment, namely, "whether the establishment for tax purposes, of the costs of all technical and professional training is practical and whether such information will be available." The Bureau has no information on which to base an answer to this question but the Council, through its Secretary, Dr. Anderson, feels that it would not be too difficult to establish the costs of a medical education at least by recent graduates. Tuition costs could readily be determined as well as the costs of books and equipment. The cost of housing and meals could likewise be determined but there may be some question as to whether expenditures of this sort would be taken into consideration in determining the total amount to be amortized. The same question may also be raised with respect to traveling expenses incurred in attending school. The major portion of the costs of a medical education, however, may be ascertained without too much difficulty.

Quite aside from the question of the determination of costs, there
other aspects of the matter that should be considered. In order to jus
support of the proposal embodied in the resolution, its benefits wo
have to be limited to those taxpayers who themselves paid for th
medical education. It would seem rather indefensible to suggest tha
taxpayer be permitted to amortize for tax purposes the costs of a medi
education when someone else paid for that education, such as the fa
of the taxpayer. Furthermore, business concerns are permitted to de
ciate capital assets to offset deterioration and obsolescence. It will
somewhat difficult to draw an analogy between that procedure and the
proposed in the resolution, for even though a medical education
deteriorate it would be impossible to fix any rate of depreciation or
evaluate it in terms of money.

The House of Delegates is already committed to the proposition that
costs of postgraduate study should be *deductible* for federal income
purposes and an application has been filed with the Office of the C
missioner of Internal Revenue as an initial step to effectuate the H
action. This application is based, in part, on the contention that
expenses are incurred to keep up to date a physician's "stock-in-tra
or, in other words, to prevent deterioration. It would seem to be in
sistent to argue that the cost of medical education should be amort
on the hypothesis that such education is a capital asset and at the s
time contend that the expenses of postgraduate education are an *ordi*
and necessary business expense and not costs in obtaining a capital a
The two positions would be somewhat difficult to harmonize.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOU BUSINESS

Dr. Warren W. Furey, Chairman, presented the following
port, which was adopted:

The Resolution on the Costs of all Technical and Professio
Training, originally introduced in Atlantic City in June 1951,
submitted to the Bureau of Legal Medicine and Legislation
the Council on Medical Education and Hospitals. The statem
was made that the accomplishment of the resolution was
practical and unobtainable. The report by the Bureau of L
Medicine and Legislation was approved by your reference c
mitteee, and it recommends approval of the report.

Report of the Judicial Council

Dr. Edward R. Cunniffe, Chairman, presented the follow
report of the Judicial Council, which was referred by the Spea
to the Reference Committee on Miscellaneous Business:

To the Members of the House of Delegates of the Ameri
Medical Association:

This report covers the work done by the Judicial Cou
since the midwinter meeting, which was held in conjunction w
the House of Delegates session in Cleveland in December 19
There was a subsequent meeting held on April 19, 1951 an
third held in conjunction with the annual session of the Ho
of Delegates in Atlantic City in June. At that session a sh
report was made on matters referred from the meeting held
previous December in Cleveland. There were two meetings
the Judicial Council at that time. The fourth meeting of
Council was held in Chicago on Oct. 9, 1951. At these meeti
the usual routine business was transacted which consisted
an examination of those applying for Fellowship whose el
bility was questioned, the recommendation of candidates
Affiliate Fellowship, and the consideration of many requests
decisions and opinions concerning the ethics of practices wh
were either already followed or were contemplated by
writers. A great majority of these queries were answered by
Chairman, who expressed his personal opinion with the assura
that the decision of the entire Council would be forthcomi
At the fifth meeting, held in Los Angeles on December 2,
Council heard an appeal from the decision of a constituent st
medical association. A second meeting, on December 3, was c
cerned entirely with routine business such as outlined abo

ENTERTAINMENT EXPENSES

The Judicial Council has been asked to express its opini
with respect to the ethical aspects of expenditures made
physicians for the entertainment of other physicians. The Cou
cil does not consider such expenditures as *per se* unethical. The
are circumstances under which a professional obligation m
rest on a physician to entertain other physicians. It is a usu
and necessary concomitant of the practice of medicine. It is ce
tainly not an uncommon practice and is recognized by the pr
fession generally as entirely proper and justifiable.

The opinion of the Council was requested on this matter b
cause governmental tax authorities in several jurisdictions ha

Graduate Training: The great amount of work covered in the continuation study of graduate training programs may be attested to by the fact that from October 1, 1950 to September 30, 1951, the Council's field representatives visited 574 hospitals for the purpose of reviewing and evaluating 238 internship programs and 1,437 residency programs. The Council's program envisages that every hospital approved for internship and residency training will be inspected at least once every two years.

The supply and distribution of interns has proven to be a difficult problem for solution. Your reference committee would point out that for many years the House of Delegates has received resolutions having to do with this subject. A special committee was appointed by the House of Delegates under the chairmanship of Dr. William Bates of Pennsylvania to study the many ramifications incident to this matter and presented a report to the House of Delegates in 1949. This report has been most helpful to the Council.

A Resolution on Approval of Internships from the Oregon State Medical Society was received by the House at this session. This, along with many other similar resolutions, the report of Dr. Bates' Committee and the material now in the hands of the Council will be turned over to a committee recently appointed by the Board of Trustees and known as the Advisory Committee on Internships. This committee held its first meeting in September 1951, at which time the overall subject was reviewed. Plans are now in process for the future development of the study, the results of which will not be forthcoming for at least another year because of the tremendous amount of detail.

It is interesting to note that the number of hospitals approved for residency training has increased from 1,071 in 1950 to 1,120 in 1951, and that residency programs in general practice increased from 32 in 1950 to 66 in 1951, an increase of 34.

In the Council's report it is pointed out that the Council has worked in close collaboration with the American Board of Internal Medicine and the American College of Physicians for the purpose of evaluating approved residency programs in internal medicine. This study has been aided to a considerable degree by a contribution of $1,500 from the American College of Physicians and another of $1,000 from the American Board of Internal Medicine. These two organizations are to be commended for their direct support and interest.

Technical Schools: Your committee has been impressed with the work being done by the Council on Medical Education and Hospitals in collaboration with the Council on Physical Medicine and Rehabilitation relating to the personnel, training facilities, standards and curricula of technical schools. This study in the mind of your committee has been long overlooked, and it is good to know that these studies will be continued. It is appreciated by all concerned that those who would choose this vocation should not be hampered by the demand that they hold a college degree. Definite principles for the guidance of those conducting technical schools will be forthcoming in the near future.

Collaboration with Other Agencies: It is noteworthy that the Council on Medical Education and Hospitals is increasing its efforts to collaborate with other agencies interested in the many phases of medical education. This endeavor has become one of the most significant parts of the Council's program in terms of time, energy and importance.

Annual Congress on Medical Education and Licensure: Your committee would like to call the attention of the House of Delegates to the fact that on February 11 and 12, 1952, the Congress on Medical Education and Licensure will meet in Chicago. This meeting is one from which stems constructive information which in turn has been applied to the betterment of medical education and the licensing of physicians. Your committee suggests that those interested in these subjects attend these sessions.

The remainder of the report of the Council on Medical Education and Hospitals is purely informative.

Supplementary Report of the Council on Medical Education and Hospitals: This supplementary report points out that during the past year the Council has been engaged in a periodic revision of its "Essentials of an Acceptable Medical School." This work has been completed and the Council requests that the House of Delegates adopt these Essentials. The "Essentials of an Acceptable Medical School" was first approved by the House of Delegates of the American Medical Association in 1910, since which time 8 revisions have been made. Copies of this report have been distributed to the members of the House of Delegates. Your committee has given considerable study to its contents. Your committee, suggests that the third paragraph of section "III Faculty" be edited to read:

"Reasonable security of tenure must be assured in order that the personnel of the faculty may have adequate stability. Salaries of full time members of the faculty should be sufficient to enable them to support themselves and their families without the necessity of diverting time and energy to other occupations."

Your committee would also like to call attention to the statement made in section "X Curriculum," which is as follows: "No rigid curriculum for accomplishing these objectives can be prescribed." To this your committee heartily subscribes.

Your committee would like to commend the Council on Medical Education and Hospitals for the work completed in furthering improvements in medical education and hospital standardization. The Council has done a tremendous amount of work and in the opinion of your committee has done an admirable job.

Report and Supplementary Report of Council on Scientific Assembly

Dr. Henry R. Viets, Chairman, presented the report of the Council on Scientific Assembly (see THE JOURNAL, Nov. 24, 1951, pages 1278-1279) and the following supplementary report, both of which were referred by the Speaker to the Reference Committee on Sections and Section Work:

The Council on Scientific Assembly met with the section secretaries on October 16, 1951 in Chicago. Another meeting of the Council was held on December 3 in Los Angeles. This supplementary report deals with the principal business transacted at these meetings.

1952 ANNUAL SESSION

The request from the Smith, Kline and French Laboratories for permission to televise at the Chicago Annual Session was granted. The time schedule for the General Scientific Meetings and the section meetings was revised and will be put into effect at the Chicago Session. The General Scientific Meetings wil be held all day on Monday and on Friday morning. The sections will meet both mornings and afternoons, on Tuesday, Wednesday and Thursday. It is hoped that this arrangement will obviate the difficulties encountered for many years by sections meeting on Friday afternoon, after the closing of the Scientific Exhibit at noon. The programs of both the General Scientific Meetings and the section meetings are well developed at the present time with speakers of national importance on timely topics of interest to the medical profession in general.

1952 CLINICAL SESSION

The general plan adopted, but not used, for the Clinical Session that was to have been held in Denver in 1950 will again be put into effect at the session to be held in the same city in December 1952. The Council has already conferred with Dr. William B. Condon, Chairman of the Local Committee on Arrangements, in regard to the program and will meet with his committee in April 1952, in Denver, to consider the program in detail.

1953 ANNUAL SESSION

The Council has considered the preliminary plans for the New York Annual Session in 1953. As that year will mark the 300th anniversary of the founding of New York City and a Tercentenary Celebration is planned by the city, the Council would suggest that an historical presentation, by exhibit and lectures, of three hundred years of New York medicine might be made a feature of the meeting.

Respectfully submitted,

HENRY R. VIETS, Chairman.
STANLEY P. REIMANN.
ALPHONSE MCMAHON.
CHARLES H. PHIFER.
CARL A. LINCKE.
MICHAEL E. DEBAKEY.
SAMUEL P. NEWMAN.

Organizational plans which will set this Commission in motion have been completed, the commission to convene in Chicago on Dec. 15, 1951 for its first meeting. The Commission will be made up of 18 members, six representing the American Medical Association, six the American Hospital Association and three each from the American College of Physicians and the American College of Surgeons. Those on the Commission representing the American Medical Association are: Drs. Gunnar Gundersen and Stanley Truman for terms of three years; Drs. Dwight A. Murray and Herman G. Weiskotten for terms of two years, and Drs. Rolland Whitacre and Julian P. Price for terms of one year. These members of the Commission representing the American Medical Association are truly representative of the administrative, general practice and specialty departments of the American Medical Association and, because of their qualifications, it is hard to conceive that their efforts will not be crowned with success.

Your committee visualizes the wide scope of the problems which will be placed before this body. For instance, the questions besetting hospital accreditation along with kindred problems will be but a beginning. Your committee is in entire accord with the ideas relating to the purpose of the Commission, with the apportionment of members from the respective representative organizations who will make up the Commission and with the organizational plans.

Financial Support of Medical Education and Report of the American Medical Education Foundation: Again your committee has taken the liberty of combining two reports in the belief that it will make for better correlation. The gist of the comments to be found in the first portion of this report will be found in the report of the Council under the heading "Financial Support of Medical Education," and in the report of the American Medical Education Foundation.

Considerable discussion was devoted to this subject. It was pointed out that there are many focal points through which contributions of physicians for financial support of medical education are channeled. These agencies are on local, state and national levels. Many physicians have contributed to one or more of these agencies; some earmark their contribution for a particular medical school. It is suggested that the names of donors with the amount contributed be relayed by these agencies to the Foundation so that all contributions may be acknowledged. If this is done, it will be shown that the number of physicians contributing to this cause will be greatly increased over those making direct donations to the fund. If this is done, it will be most helpful in attracting the attention of many within and outside the allied professions to the fact that the physicians of the United States are not only backing the movement vocally but with their hard cash as well, which may in turn prompt them to forward their contributions to the fund.

Projecting the aims of the Foundation into the future, the plans for the distribution of the fund to medical schools annually shape up as follows: (a) Equally divided grants between the respective medical schools (present plan); as the fund grows (b) per capita grants based on enrolment at the respective medical schools, and (c) special grants where special needs are designated. In the future all contributions earmarked for a particular medical school will be turned over to that school along with its proportionate share of the general fund.

There should be set up in the constituent medical associations committees which would try to obtain contributions from all of their members. Your committee commends and agrees with the suggestions contained in the extemporaneous remarks on this subject delivered by Dr. Elmer L. Henderson to the House of Delegates on Tuesday, December 4.

In the report of the Council on Medical Education and Hospitals the following statement occurs: "The gap between unmet needs and available funds has been narrowed to a point where if the National Fund for Medical Education and the American Medical Education Foundation can provide an annual fund of from five to ten million dollars, the gap that remains for many schools will be all but eliminated." With this in mind, it should be a stimulus to all of us not only to give but to give more than we have given in the past.

For clarification it should be pointed out that the National Fund has been conceived as an agency to raise funds on a wholesale basis from organized groups, whereas the Foundation is designed to raise funds specifically from the medical professio The two agencies work in close relationship, this being attest to by the fact that members of the Board of Directors of t Foundation serve on the Advisory Council of the Fund.

Your committee is of the opinion that this project shou have the sympathy and encouragement of every member of t medical profession, to the end that all physicians contribu liberally each year to the fund.

On the matter of contributions by doctors to the Americ Medical Education Foundation the attention of the House called to the fact that the revision of the By-Laws which p vides that Fellowship status will be discontinued means a l to the American Medical Association of approximately $350,0 This money could well be used by the American Medical E cation Foundation. It is recommended that the Board of Trust explore the feasibility of reactivating the Fellowship status recognition of those doctors who annually contribute, as l erally as they can, to the American Medical Education Foun tion.

Brochures with subscription blanks have been distributed the Convention Hall during this Clinical Session and th should be made available to every county medical society this country so that local committees may utilize them in effo to obtain subscriptions to the fund.

Report of the Council on Medical Education and Hospit There were three resolutions referred to the Council on Me cal Education and Hospitals during the annual 1951 session h in Atlantic City. The first had to do with the multiplicity medical meetings with particular reference to the requirem of attendance at hospital staff meetings; the second recommen that at least eight of the 24 months' general practice residen be devoted to surgery four of which would embrace operat room experience, and the third recommended that the Cou set up standards of qualifications for physicians who wo apply radium in hospitals. These resolutions have had the c sideration of the Council. The Council recommends that resolutions, because of their complexities, be referred to newly appointed Joint Commission on Accreditation of Hospit for further study. Your reference committee is in agreem with this plan.

Medical Education and National Defense: Your commit would remind the House of Delegates that the Council has e barked on a plan which will maintain "a flow of well trai physicians adequate to meet the needs of both the armed fo and the civilian economy during partial or complete mobili tion."

Survey of Medical Education: The Survey of Medical Edu tion by the Committee on the Survey of Medical Educat under the sponsorship of the Council on Medical Education a Hospitals and the Association of American Medical Coll has been in progress for the past two years. It has entaile tremendous amount of work which is still unfinished. The fore, it will not be possible to publish the complete report pr to the spring of 1952. It might be pointed out that the S committee on Preprofessional Education of the Survey of Me cal Education has made an intensive study during the past y of preprofessional education. The committee has visited appro mately 100 colleges and universities offering such educatio opportunities. A detailed report of this study will be forthco ing in the near future. Your committee would also like to po out that detailed information has been obtained by the Coun on Medical Education and Hospitals from 19 medical scho offering preceptorships, a report on this study appearing in t 1951 Educational Number of THE JOURNAL. The *Committee* the Survey of Medical Education is also investigating precept ships and will present its findings in its final report.

Foreign Medical Schools: The Council, collaborating w the Association of American Medical Colleges, has made a tailed study of foreign medical schools for the purpose of eval ating their curricula. It is interesting to note that the origin list of 38 schools published in February 1950 has been panded to 49 with the recommendation that their graduates given consideration when applying for licensure on the sa basis as graduates of approved medical schools in the Unit States. This list of acceptable foreign medical schools is of valuable aid to licensure boards throughout the United Stat

Your reference committee appreciates the great amount of work done and the time spent in preparing the Amendments to the Constitution and By-Laws, and desires to commend the standing committee for thorough and efficient performance of an arduous task. Your reference committee approves all of the amendments and recommendations presented by the standing committee in Sections B and D of its report, which are herewith presented in detail:

AMENDMENTS TO THE CONSTITUTION

1. Article 6, Section 2: This matter was held over, under the rule, from the June 1951 session at Atlantic City, being an amendment to the Constitution, and is, in reality, a composite of several resolutions introduced at that time. Its effect is to add to the membership of the House of Delegates the Assistant Secretary of the American Medical Association and two delegates elected by the Student American Medical Association as ex officio members without vote, and to give the five immediate Past Presidents of this Association voting membership.

The standing Committee on Constitution and By-Laws has recommended that "that portion of the amendment which provides that five immediate Past Presidents of the American Medical Association shall be voting members of the House of Delegates" be rejected. The standing committee believes that, "so far as possible, the voting power of the House of Delegates should be limited to elected delegates; the committee recognizes the propriety of delegate representation from the Armed Forces and the Veterans Administration but believes that extension of such voting power to non-elected representatives is unwise." Your reference committee concurs in this recommendation, and points out that at present all Past Presidents are members of the House without vote. The amended section would then read: "Sec. 2.—The House of Delegates is composed of delegates elected by the constituent associations and by the sections of the Scientific Assembly and of delegates from the Medical Departments of the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration, appointed by the Surgeon-General or Chief Medical Director, as the case may be, of the respective service. The general officers, the Past Presidents of the Association, the General Manager, the Assistant Secretary, the Editor of The Journal of the American Medical Association, the chairmen of the several Councils and two delegates elected by the Student American Medical Association shall be ex officio members of the House of Delegates without the right to vote."

2. Article 6, Section 3 of the Constitution: Add the words "of the American Medical Association" after the words "active members" in the third line of this Section, so that this sentence will read: "Sec. 3.—The number of delegates from the constituent associations shall be proportional to the number of active members of the American Medical Association in the respective associations as provided in the By-Laws." This is an obvious clarification, and your committee recommends its adoption.

These are the only amendments to the Constitution on which your committee has had to take any action. The balance of this report deals with amendments to the By-Laws.

AMENDMENTS TO THE BY-LAWS

3. Chapter II, Section 2.—Dues. In the first line of this Section, insert the words "for active members" after "annual dues." Seventh line, insert the word "membership" before the word "dues" at the beginning of the sentence, and at the end of this sentence add, after the word "Association," the following: "unless a Member requests another scientific journal published by the American Medical Association in lieu of The Journal of the American Medical Association." Change the fourth sentence of this Section to read: "The Board of Trustees may excuse the following members from payment of dues, provided they are fully or partially excused from the payment of local dues by their component and constituent associations:"

Amend subsection (D) of this Section to read: "A Member temporarily in the Armed Forces. Dues will be remitted from January 1 or July 1 following the date of the Member's entrance into military service, regardless of local dues exemption."

Amend subsection (E) to read: "Members may be excused, on request, from the payment of American Medical Association dues, regardless of local dues exemptions, on January 1 following their 70th birthday."

Amend the last paragraph of this Section by substituting the date "June 1" for the date "December 31" in the second line. This sets the deadline for delinquency. This amendment was recommended by the Board of Trustees for administrative reasons, since the present delinquency date, "December 31 of the year for which dues are prescribed," is so late that the membership list for one year cannot be determined until the next ensuing year.

4. Chapter III.—Disciplinary Action. In the third sentence, delete the words "the House of Delegates on the recommendation of" and the word "and" following the words "Judicial Council" and add after the phrase "expel any member" the phrase "of the American Medical Association." Delete, also, the last sentence of this Chapter, which begins "The hearing . . ." Chapter III will then read: "In all controversies between a Member and his component society or constituent association, an appeal may be made to the Judicial Council on questions of law and procedure only, but not of fact. The appeal shall be perfected within six months following the date of decision by the constituted authority of the constituent association in question. In addition to such disciplinary action as may be taken under the constitution and by-laws of the component society and constituent association to which the Member belongs, the Judicial Council, after due notice and hearing, may censure, suspend or expel any Member of the American Medical Association for an infraction of the Constitution or these By-Laws or for a violation of the Principles of Medical Ethics."

These changes are suggested because, in its present form, the wording conflicts with the duties of the Judicial Council as outlined in Chapter X.

5. Chapter IV, Section 2, (A) (2) Service Fellows. About the middle of this Section, after the words "Veterans Administration," add the words "and the Indian Service," and in the eighth line delete the word "its" and substitute the words "their respective," and add an "s" to the word "Director" in the following line, so that the first sentence of this subsection will read: "(2) Service Fellows.—On approval of the Judicial Council, commissioned medical officers of the United States Army, the United States Navy, the United States Air Force or the United States Public Health Service, who have been nominated by the Surgeon General of the respective services, and the permanent medical officers of the Veterans Administration and the Indian Service, who have been nominated by their respective Chief Medical Directors, may become Service Fellows." Note that this refers to Fellows. This will be changed, along with the balance of the By-Laws, when amendments are adopted to provide for a single membership classification.

6. Chapter IX, Section 1 (A). Delete from the last two lines the phrase "session of the House in which he is to serve" and substitute therefor the phrase "date on which he is to assume office." This is to obviate an awkward situation that might theoretically arise, as a Delegate actually is in office on January 1 of the year for which he is elected, although a session is not ordinarily held until June.

7. Chapter IX, Section 1 (B). Delete the end of the first sentence after the word "appointment." This clause is now obsolete.

8. Chapter IX, Section 3 (C) (2). Change the word "attachés" to the phrase "members of the staff."

9. Chapter X, Section 1 (A). Add after the words "Standing Committees" the word "Councils" in parentheses.

Chapter X, Section 4. Add the word "Councils" in parentheses after the title "Standing Committees." In subhead (5) of this Section, change the word "Committee" to "Council."

10. Chapter X, Section 4 (B).—Change the letter (B) to (A) and delete the final clause of the first sentence of the second paragraph, beginning "except that . . .", so that the sentence will end at the word "expires." This clause is now obsolete.

In the last sentence of this paragraph delete the words "the Secretary of the Association and the Editor of The Journal," since these officials are already members of all standing committees as provided in another section of the By-Laws, and substitute the phrase "an ex officio member" for the present phrase "ex officio members.".

11. Chapter X, Section 4 (B). In the sixth line of the fourth paragraph insert after "Board of Trustees" the phrase "selected by the Board," and after the word "Council" in the next line add the phrase "except that the President and the Trustee member shall be ex officio members without vote."

Report of Reference Committee on Sections and Section Work

Dr. T. C. Terrell, Chairman, presented the following report, which was *adopted:*

Your reference committee studied the report of the Council on Scientific Assembly as well as the supplementary report of that Council. The committee wishes to recommend that the Council on Scientific Assembly proceed with its plans for a suitable program embodying the tercentennial celebration of New York during the 1953 Annual Session in New York City. Your committee accepted both the report of the Council on Scientific Assembly and its supplementary report, and wishes to commend the Council in its present policy of trial variations in the routine meeting dates of the general and section meetings during the annual sessions.

Report and Supplementary Report of Council on Medical Service

Dr. James R. McVay, Chairman, presented the report of the Council on Medical Service (see The Journal, Nov. 24, 1951, pages 1279-1281) and the following abstract of a supplementary report, mimeographed copies of which were distributed among the members of the House of Delegates. (The complete supplementary report will appear in the Official Proceedings of the House of Delegates, which is published separately.) The report and supplementary report of the Council were referred to the Reference Committee on Insurance and Medical Service.

ABSTRACT OF SUPPLEMENTARY REPORT

As a standing committee of the House of Delegates the Council on Medical Service reports at each session, both annual and clinical.

At this time I should like to invite your attention to a montage depicting the four pilot "You and Your A. M. A." programs. Mention is made in the Board of Trustees report concerning the success and future of these programs.

I should also like to submit to the House of Delegates an laboration of the section of the Council's report having to do with the Physician Placement Service activities. At the annual session in June 1951 the House approved four recommendations for expanding the Association's activities in the placement field. The Council has followed through on these recommendations and, through its Committee on Extension of Hospitals and Other Facilities, has taken steps to carry out these recommendations. At this time I shall not read the details in regard to our suggestions but copies are available to members of the House.

Memorial To Dr. A. W. Adson

This report would not be complete without a word of appreciation of the services of Dr. A. W. Adson, who was stricken while attending the North Central Conference in Minneapolis and died the following day, November 12, 1951. In addition to his outstanding scientific attainments, he gave unstintingly of his time and energy to perpetuate and further the high standards of the medical profession.

Dr. Adson was a leader in the creation of the Council on Medical Service in 1943 and served on the Council from its origin until 1948. Part of that time he was its Vice Chairman and more recently served as chairman of the Council's Committee on Prepayment Hospital and Medical Service. He will be missed by all members of the Council, by the members of the House of Delegates and by his many friends throughout the country who have had the privilege of his counsel and friendship.

Respectfully submitted,

James R. McVay, Chairman.
Elmer Hess, Vice Chairman.
Jesse D. Hamer.
Joseph D. McCarthy.
Thomas A. McGoldrick.
H. B. Mulholland.
John W. Cline.
E. L. Henderson.
David B. Allman.
Mr. Thomas A. Hendricks, Secretary.

Report of Reference Committee on Insurance and Medical Service

The material from the Council on Medical Service was considered under the several headings given in its report.

The subject of Voluntary Health Insurance as presented in the published report, as well as in the Suggested Amended Statement, subsequently added by the Council and included in its supplementary report, is approved by your committee without additional change or correction. The subject of Federal Medica Services is presented by the Council. Your committee approve of the presentation.

The subject of Physicians Placement Service, as well as a supplementary report received by your committee from the Counci on Medical Service, ably discusses the problem of physicia placement. Your committee compliments the Council on th thoroughness with which this important subject was investigate and approves of the report as presented.

On the subject of Maternal and Child Care, your committe approves of this as presented but wishes to reaffirm further th committee's firm belief in private care through a private insu ance carrier where possible. It holds that ample private faciliti exist or could readily be provided, without federal interferenc for maternal and child care.

The Care of the Indigent is a fundamental, crucial proble that must be solved. Your committee congratulates the Counc on Medical Service for its work on this all important proble and approves of its efforts to date.

Your committee further wishes to compliment the Council o Medical Service on its efforts to develop liaison with other o ganizations. It is through a united effort that progress is being a will be made towards the goal of improved medical care.

Your committee studied with deep interest the Loan Kits us by the Council on Medical Service in its various present tions over the country on its general topic of "You and Yo A. M. A." We believe such presentations should be encourag and expanded as opportunity affords so that all members of t medical profession the country over may know and understan the organization and workings of the American Medical Ass ciation.

Report of Committee on Constitution and By-Laws

Dr. Louis A. Buie, Chairman, presented a 23 page report the standing Committee on Constitution and By-Laws, whic was divided into four sections: A, B, C and D. Section A had do exclusively with amendments to the Constitution and t By-Laws so as to establish the single membership classificati which was recommended by the House of Delegates at t annual session in June 1951. The Speaker declared that the would be no referral of Section A of the report, since the amen ments included therein must lie over for final action until t next session of the House. Section B presented for final actio amendments to the Constitution submitted at the June 1951 se sion. Section C included amendments to the Constitution, exclusive of those under Section A, presented for the first tim at this session of the House of Delegates, which must lie ove until the June 1952 session. Section D presented amendmen to the By-Laws which could be acted on at this session, and recommendation that the Resolution on Emeritus and Retire Membership introduced at the 1951 annual session be n adopted.

The Speaker referred Sections B and D of the report to th Reference Committee on Amendments to the Constitution an By-Laws, declaring that Section C, as well as Section A, mus lie over, without referral at this session, until the June 195 session.

Report of Reference Committee on Amendments to the Constitution and By-Laws

This report covers Sections B and D of the report of the standing Committee on Constitution and By-Laws. These sections o the report were referred by the Speaker. Sections A and C o the report must, under our regulations, lie over for action unti the next session of this House of Delegates.

and its constituent medical associations. We must maintain the interest and the friendly cooperation of the many thousands of organizations whose support we have won in our campaign against regimentation. But the election year ahead is perhaps the most critical year of the medical profession's existence as a free society, dedicated to the health of a nation, unhampered by politics. Before this time next year, the die will be cast as to who will be responsible for the health of Americans in the future, whether medical men or politicians of socialistic persuasion. The character and caliber of the men elected to Congress next year and to the high administrative offices of our Nation will determine that vital issue. With the same sincerity of purpose which has guided medicine in its crusade against socialization, we believe that the doctors of America, exercising their rights as individual citizens, are determined to help decide the outcome of the fundamental question as to whether this Nation shall surrender to socialism, or shall remain a free nation, dedicated to the principle of human liberty.

It is apparent that Americans expect such help and such leadership in their home communities from doctors who have led the three year crusade to turn the edge of socialism. During the months ahead, this committee intends to urge doctors to exercise their precious privileges as alert and responsible citizens. Every doctor will be meticulously advised that his medical society, as an incorporated organization must not participate in election activities. But every doctor will be as carefully advised as to what he may do legally as an individual citizen who cares about the course of his country to help determine that course. We intend to urge doctors, as independent individuals, to study the background and the beliefs of every candidate for public office, irrespective of party labels or partisan considerations. We intend, frankly, to urge doctors, as good citizens, to support and encourage the public service of men and women of high moral integrity, who know the values of individual responsibility and who advocate and practice the precepts of Americanism, not socialism nor any other foreign-born ism.

As you know, Whitaker and Baxter have been retained on a half time, counselling basis to direct this work.

This we believe to be the only appropriate culmination to the work of preserving the freedom of the medical profession and, at this crucial time in American affairs, we believe this to be the greatest contribution we can make to our country.

In the annals of our profession and as future generations judge us, we believe that it shall always stand to the honor of this House of Delegates and as a tribute to the practicing physicians of this era that when we faced up to the issue of state socialism, we had the courage to resist appeasement and to refuse to compromise either our medical principles or our belief in the basic principles of American freedom.

ELMER L. HENDERSON, Chairman.
LOUIS H. BAUER, Vice Chairman.
EDWIN S. HAMILTON.
GUNNAR GUNDERSEN.
WALTER B. MARTIN.
WILLIAM BATES.
R. B. ROBINS.
GEORGE A. UNFUG.
GEORGE F. LULL.
E. J. MCCORMICK.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. R. B. Robins, Chairman, presented the following report, which was adopted:

Report of the Coordinating Committee and the Supplementary Report of the Board of Trustees Regarding the Coordinating Committee: Your committee approves of this report and recommends its adoption. Again we express our appreciation of the splendid report submitted.

Report of American Medical Education Foundation

Dr. Elmer L. Henderson, President, presented the report of the American Medical Education Foundation (see THE JOURNAL, Nov. 24, 1951, pages 1281-1282) and the following extemporaneous supplementary report, which were referred to the Reference Committee on Medical Education and Hospitals:

At the interim session last December in Cleveland, the Board of Trustees of the American Medical Association made a contribution of a half million dollars to medical education. Shortly after that time, the American Medical Education Foundation was formed. We had as a nucleus at that time the half million dollars contributed by the Board of Trustees of the American Medical Association and a few thousand dollars contributed by the officers of the Association and members of this House of Delegates. At the same time and on the day that the original contribution was announced, Medical Economics contributed $5,000 in cash and $5,000 in advertising space.

We had hoped that the early part of this year we would be able to report at least a million dollars contributed by the medical profession of this country, but we have been far from our million dollars even up to this time. In addition to the half million dollars contributed by the American Medical Association, up to Nov. 23, 1951, $265,401.85 has been contributed. From November 23 to November 28, $1,371 was contributed. You will note that that is far below our million dollar goal for this year.

Among the contributions, there were 37 donations from lay people, 1,361 from individual doctors out of our membership of approximately 140,000. The organizations which contributed numbered 25. I am happy to say that when I came in this room this morning I was stopped by Dr. Henry S. Ruth and notified of a contribution of $2,500 from the American Society of Anesthesiologists. There have been a number of contributions from organizations that I have announced previously before this House of Delegates. For instance, in June I announced a contribution of $10,000 from the Woman's Auxiliary to the American Medical Association, which was certainly a very liberal contribution from a group that has such limited funds. Since that time several other organizations have contributed. There have been some state medical societies that have contributed. Among such contributions, the greatest from any state society was $102,955 contributed by the members from California. That is by far the largest contribution that we have received from any state organization or from the various doctors of any state. It ranges from that down to nothing. There are three states in the Union where there has not been a single doctor who has contributed to this fund.

Since it was brought to the attention of the officers and the Board of Trustees that a few had neglected to contribute, every one of them has contributed. But there are a very large number of members of this House of Delegates who have not contributed, and I hope before we leave this meeting we shall have a contribution from every member of the House. We have got to prove to the folks in Washington who are trying to regiment us that we are in earnest, that we are determined to support medical education. If the Federal Government ever takes control of medical education, it is not going to be long until they will have full control of the medical profession, and the only way that we can defeat that is to support medical education.

The National Fund for Medical Education, headed by the Hon. Herbert Hoover as Honorary President, has done a great deal toward raising funds and at this time is making more progress than ever. We joined with them in July, at which time we furnished $640,882.90, and a distribution was made to every four year medical school in this country of $15,000, and to every two year school of $7,500. That was the initial contribution from the combined two groups. We had hoped by the first of next year to make another distribution, but our funds have been coming in very slowly recently. However, we are encouraged, due to the fact that we have been notified by quite a number of state medical societies that committees have been formed to solicit funds from the members, and some have notified us that they have quite a little money on hand, which we hope to receive before the end of the year. But, gentlemen, I hope that each and every one of you will take this matter seriously and not only donate to this fund yourself but also go back home and see that committees are formed and see that more support is given this movement. It is imperative that we do not fall down on this movement for collection of funds for medical education.

The report of the Reference Committee on Medical Education and Hospitals on the above report will be found in the report of the reference committee following the report of the Council on Medical Education and Hospitals on page 1688.

At the beginning of the next paragraph substitute the word "Council" for the words "Standing Committee." Delete the entire second sentence of this paragraph beginning with the words "At the 1951 Annual Session. . . ." This sentence is now obsolete. In the tenth line of this paragraph add after the words "Board of Trustees" the phrase "selected by the Board," and change the word "committee" in the next to the last line of the paragraph to "Council."

12. Chapter X, Section 4 (F). Delete the word "subcommittees" in the second line, replacing it with the words "special committees."

In the same Section 4, subsection (H), in place of the phrase "a report," in the second line, substitute the phrase "an annual report" and add a new sentence at the end of this paragraph, as follows: "Only urgent special reports shall be submitted at the annual session."

Reletter the subsections "C" to "I" inclusive, in Section 4, each respectively with the preceding letter of the alphabet.

13. Chapter X, Section 4 (I) (5). Substitute for the phrase "standing committee" the word "Council."

14. Chapter XII, Section 1 (B). Substitute for the phrase "Scientific Assembly" the phrase "annual session."

15. Chapter XII, Section 1 (C). Delete the words "and of the Board of Trustees" at the end of the paragraph. This is provided for in Chapter XIII under "Composition of the Board of Trustees."

16. Chapter XII, Section 2 (A). Delete the words "and the Board of Trustees" at the end of this paragraph (A).

17. Chapter XIII, Section 1. In the fifth line of this Section add the words "the Assistant Secretary" before the words "the Treasurer," and add in the same sentence of the same Section, after the words "the Editor of The Journal," the words "and others at the invitation of the Board."

18. Chapter XIV, Section 1. Change the words "Scientific Assembly" in the third line of this Section to the words "Annual Session."

A Resolution on Emeritus and Retired Membership introduced at the June 1951 session of the House of Delegates was referred to the standing Committee on Constitution and By-Laws for consideration. The standing committee recommends that the resolution be not adopted, in view of the fact that the present Constitution and By-Laws provides for Associate Membership in the American Medical Association for those members of constituent associations who are not eligible for active membership, and for exemption from dues of those active members who are over the age of seventy or are retired from practice. In the opinion of the standing committee, therefore, the present Constitution and By-Laws already provides categories of Membership similar to emeritus and retired membership. Your reference committee concurs in this opinion and recommends that the resolution be not adopted.

On motions duly made, seconded and carried, after discussion, the proposed amendments to the Constitution and to the By-Laws were adopted, as was the report of the reference committee section by section and as a whole.

Introduction of Delegates from Student American Medical Association

The Speaker introduced to the House of Delegates the delegates of the Student American Medical Association, Mr. James Allen Henderson of the University of Oregon and Mr. David Buchanan of the University of Illinois.

Report of Coordinating Committee

Dr. Elmer L. Henderson, Chairman, presented the following report of the Coordinating Committee, which was referred to the Reference Committee on Legislation and Public Relations:

Mr. Speaker, Members of the House of Delegates:

Three years ago, on Dec. 1, 1948, in a momentous session at St. Louis, which should long be remembered by every doctor who values his right to practice in freedom, this House of Delegates adopted a Statement of Policy which may well be called American Medicine's Declaration of Independence. It was a ringing declaration of belief in medical responsibility and in voluntary action, as opposed to compulsion, in meeting the problem of providing prepaid medical care for the American people. It was a forthright declaration, too, that American medicine would fight to defend and maintain its freedom. We were in great difficulty when that Statement of Policy was adopted, with the serious threat hanging over us that a nationwide system of socialized medicine would be enacted before we could even mobilize our forces and inaugurate the National Education Campaign which the House of Delegates had authorized. This committee, which had been directed to organize and supervise the national campaign of public education, met and worked for months in a continuous state of emergency and there were many who told us that we had started too late, that we should have bowed to the inevitable and sought a compomise with those in the Government who were determined to take over control of medical practice.

On this third anniversary of medicine's Declaration of Independence, it is important that we make realistic appraisal o what we have achieved in order to be very sure of where w stand today and what should be our course for the future.

In the prosecution of our campaign, medicine has accomplished all of the objectives we set ourselves at the outset, and more. The destructive legislation designed to create a Government-directed system of compulsory health insurance wa stopped well within our time limit. Constructive programs i scores of fields have been set in motion or emphatically strengthened. A strong, new measure of public approval and friendl understanding has been earned for our profession by reaso of the fact that doctors carried their case directly to the America people. All the many objectives attained, the methods used t accomplish the work and the costs involved have been reporte in detail at each meeting of this House during the three yea period, in order that all members would be closely advised of th campaign's vicissitudes, its triumphs and its progress towar ultimate success.

Perhaps the most significant figures which could be cited i this report are the most recent compilations of the number o Americans who are protected today under Voluntary Healt Insurance. These figures furnish the most conclusive proof o medicine's conviction that "the voluntary way is the America way." The latest figures disclose that in the three years since ou nationwide campaign of education was launched, there hav been 25,000,000 additional enrolments in the Voluntary Healt Insurance plans of the country, and that today approximatel 77,000,000 people in the United States have some form of prepaid health protection. The American people are thus demonstrating in splendid fashion that they believe, with us, in Voluntary Health Insurance as opposed to compulsory Governmen dominated plans.

The only other figures important to record here today concern our campaign finances. As you will recall, our first year' campaign, which encompassed the first nationwide distributio of informative material, cost approximately $1,500,000. In th second year, when our program included the very successf national advertising campaign, our expenditures totaled ju under $2,500,000. This year we were able to reduce our expend tures to about $500,000. For the coming year's work, due to th progress which has been made, we have been able to cut ou budget to less than a quarter of a million dollars.

The work of the Campaign Coordinating Committee in th year ahead will be of a somewhat different order from that o the past. We must, of course, continue to be alert and ready fo any threats of compulsory health insurance or other legislatio designed to regiment the medical profession. Our campaign organization must be geared to combat such proposals and to win

As the members of this House of Delegates are aware, th present national administration is expected to make a vigorou renewal of its demand for compulsory health insurance legislation in the first month of the coming session of Congress. I should also be noted that Gov. Earl Warren of California, a declared candidate for the Republican nomination for President recently has renewed his agitation for compulsory health insurance. There is no partisanship in American medicine's approach to this problem and every doctor should be advised that Gov. Warren's record on this issue, is just as destructive to medical freedom as that of the present national administration.

We must, of course, do all in our power to support and encourage the broad program for improved medical care and service, which is being guided by the American Medical Association

Red Cross Special Study Committee: The committee is in receipt of a communication from Mr. James C. Nicholson, Executive Vice President of the American National Red Cross, to the effect that on November 19 the Board of Governors of the Red Cross saw a "need for an analytical and objective study of the policies, plans and procedures of the program at the national and local levels, together with the program's relationship to the resources and other responsibilities of the Red Cross." The Board of Governors therefore authorized the president of he Red Cross to "appoint a committee, whose membership shall nclude representatives of the Board of Governors, the Committee on Medical Policies and Procedures, and the chapters (the resident to designate the Chairman). The Committee's duties hall be to study the blood program for the purpose of determining the effectiveness of present policies, plans and proedures at the national and local levels in light of present and oreseeable future commitments, and to make such recommenations as may seem appropriate. The Committee shall make s report to the President for such consideration as he may etermine to be desirable by the Board of Governors."

We are not advised as to the names of the members of this ommittee. We offer the full cooperation of the American Medial Association Committee on Blood Banks. The recommendaons of this special committee could go far toward the limination of some of our recurring problems.

Armed Forces Blood Donor Program: Developing considerble concern at the exhaustion of its World War II reserve of ried plasma, the Department of Defense on August 2 issued directive from which the following is quoted:

"3. Accordingly, the Department of Defense will begin immediately;

"a. A continuous and vigorous campaign, in conjunction with the Red ross, to persuade the civilian and military population to contribute whole ood to the Armed Forces.

"b. To establish an Armed Forces blood donor program within the amework of the overall campaign, the primary purpose of which shall to obtain blood from service personnel on military bases within the ntinental United States. Civilian employees will be invited to particiate.

"4. The Red Cross has agreed to coordinate the collection of blood, imarily from the civilian population, through its existing facilities, operating blood banks, and additional Defense Centers established by the d Cross with the Department of Defense funds. Full cooperation by echelons of the three Services is urged in convincing the civilian pulation and military personnel of the vital military necessity of suprting this program.

"5. The responsibility for promotion, publicity and public information this campaign, plus any free or paid advertising, is assigned for direcn and programming to the Directorate of Public Information, Office the Secretary of Defense. It is desired that both headquarters and field blic information offices of the Services lend their full and wholearted support.

"6. The Armed Forces blood donor portion of the overall program ll be under the policy guidance of the Armed Forces Medical Policy ouncil, Office of the Secretary of Defense. Responsibility for general rection and control of this military portion of the overall program, its mprehensive coordination, integration of shipping schedules and quotas laboratories, necessary reporting procedures, and technical guidance, is signed to the Directorate of the Armed Services Medical Procurement gency, Main Navy Building, Washington 25, D. C., to which all local med Forces blood donor programs must be submitted for approval ior to actual collection of blood in order to avoid waste. Existing edical facilities and personnel should be used to the greatest possible tent. In addition, when practicable and within reasonable geographical oximity, the Armed Forces blood donor program should be coordinated th the local Red Cross facilities or cooperating blood banks. The gency and nature of this program require direct communication, which ould be authorized. Necessary funds will be made available by the irectorate from the Department of Defense Blood and Blood Derivatives und. It is understood that blood collected in connection with the Armed orces blood donor program becomes government property and will be ipped to designated facilities as prescribed."

A clarifying memorandum issued on Oct. 9, 1951, within the epartment of Defense and signed by W. Randolph Lovelace I, M.D., Chairman, Armed Forces Medical Policy Council, ontained the following:

"2. The following policies on civilian participation in this program are rnished for your information and guidance:

"a. Civilians living in areas adjacent to a military reservation on which blood donor center has been established may donate blood to the Armed orces Blood Donor Program at the military center on the same basis s civilian employees of the installation, provided no other facilities exist n the area for this purpose or pending their development.

"b. It is not considered desirable from a policy standpoint for blood onor facilities under the auspices of the military departments to be stablished outside military reservations.

"c. Contractual arrangements with independent blood banks or other civilian groups for the collection of blood in connection with the Armed Forces Blood Donor Program should not be undertaken by the Blood Group, Armed Services Medical Procurement Agency, or any other military agency. Where such arrangements are considered desirable, the cooperation of the American Red Cross should be requested in accordance with existing agreements."

Initially, the use of the term "Armed Forces Blood Donor Program" led to some public confusion as to its location in the overall program, but a perusal of the quotations above from the Department of Defense directives should eliminate any such confusion.

In the thirty days following the directive of August 2, the Department of Defense, with the assistance of a publicity expert employed for the purpose, organized a nationwide publicity campaign employing all media for the development of a public consciousness of responsibility for blood donation. Great credit is due to the wholehearted cooperation and assistance of all segment of the press, radio and entertainment world as well as that of public-spirited organizations of all kinds. At the time of the beginning of armistice negotiations in Korea, blood collections, which had been on the increase, began to diminish. The response to the publicity program has been great. The most difficult part of this task now lies ahead since the nation is under the necessity of maintaining a continuing high level of donations month after month, year in and year out, for a minimum of three years, even without the outbreak of widespread hostilities or the occurrence of a great emergency within our borders as a result of enemy action.

The American Medical Association has the responsibility of assisting in the maintenance of the balance of the program between military, civil defense and civilian needs, and physicians must accept the role of serving continuously as propagandists for maintenance of blood donations for all of these purposes in all parts of the country. Donated blood must and should be routed in one of four directions: (1) As whole blood for the Armed Services; (2) To plasma processing laboratories to build up plasma reserves for the Department of Defense; (3) To plasma processing laboratories for civil defense, and (4) For continuing daily usage for civilian needs. The need in each of these four directions is pressing and continuous planning and revision of plans will be necessary throughout the program.

As recommended by the American Medical Association in June 1951, physicians and their families should lead the way as blood donors; some medical societies have already promoted this effectively.

Federal Civil Defense Administration: Some of the relatively small funds which have become available to the Federal Civil Defense Administration may be expended for plasma reserves as well as for very important reserves of equipment requisite for large scale bleeding in the event of local disaster. The special technical manual "Civil Defense Blood and Blood Derivatives Program" probably will be published in December and will become generally available. The American Medical Association again urges on all those in authority, both in planning bodies and appropriating bodies, that full consideration be given to all the known needs of the populace in regard to civil defense.

Health Resources Advisory Committee: Under the Office of Defense Mobilization there has been created a Health Resources Advisory Committee, of which Dr. Howard Rusk of New York is chairman. This committee has set up a subcommittee on blood, and your committee is furnishing assistance to both of these committees.

The Office of Defense Mobilization has a large responsibility in respect to the balance in our economy regarding both the needs of the civilian population and of the national defense, including civil defense. This office, headed by Mr. Charles E. Wilson, has responsibilities which are very great and possesses considerable authority under the President of the United States. The programs it plans are of far-reaching significance; in respect to the blood program it has been the duty, as well as the desire, of this committee to offer the maximum assistance which the American Medical Association can render. It is probable that any planning of the Office of Defense Mobilization in this field will be announced at a reasonably early date. It is our belief that such planning could potentially lead to an early solution of many of the problems which have proved vexing.

Other Recommendations: (1) Conservation of Blood: The committee believes that whole blood should be used whenever and wherever there are positive medical indications for its use, and that due consideration should be given, also, to the contraindications to its employment and to the well known hazards resulting from the use of whole blood. Likewise, physicians should study the indications in which the use of blood fractions would be as good as or even superior to the administration of whole blood fractions, such as plasma, irradiated or dried, packed red cells, resuspended red cells and serum albumen. A physician's obligation to his patient demands the avoidance of the abuse of blood and blood products. From the overall standpoint, the use of blood fractions where indicated will increase the utility of a pint of blood. As more and more laboratories are equipped to fractionate blood it will be less necessary to resort to commercially separated fractions. It is recommended that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, in the discretion of the Editor, publish suitable articles relating to the indications and contra-indications for the use of blood and blood fractions, the hazards inherent in their use and the medical responsibility for the conservation of blood, a precious human resource available only from the veins of human beings and impossible to produce in any factory.

(2) Blood Replacement: Furnishing of blood without stressing the obligation to replace it leads to a lack of appreciation both on the part of the recipient and too often on the part of the physician ordering the blood of the difficulties involved in getting it in the first place. It is the definite responsibility of every physician ordering the use of blood to see to it that those interested in the patient replace in the bank or collection center the blood which has been used. Blood banks cannot operate unaided, and the cooperation of every physician employing the resources of a blood bank is an essential factor in maintaining its solvency in blood. There is sufficient evidence that too many physicians fail to discharge this responsibility, and it is therefore again called to their attention in order that their patients may never lack for needed blood.

(3) Blood Type Cards: The practice prevailing in many blood banks, including the Red Cross Centers, of furnishing donors with a small card bearing name and blood type should be carried out generally. For every blood donor, for whatever purpose the blood is given, there should be prepared a card which can be furnished to him bearing this blood type information.

(4) Genuine Two-Way Cooperation: Your committee has been working to develop the principle thtat the National Blood Program is a cooperative program of great organizations and that due credit should be given at all times to all participating organizations. Some of the problems which have arisen may be attributed to the tendency of the Red Cross in some places to dominate in administrative and publicity matters to the discouragement of genuine two-way cooperation. Your committee has assisted in the resolution of difficulties such as these in some areas. Your committee recommends that the Red Cross furnish a certificate of participation suitable for display to each cooperating blood bank.

(5) Copies of This Report: Your committee recommends that a copy of this report, after adoption by the House of Delegates, be sent to each of the following: (*a*) The Health Resources Advisory Committee of the Office of Defense Mobilization; (*b*) The Chairman of the Armed Forces Medical Policy Council, Office of Secretary of Defense; (*c*) Director of Health and Special Weapons, Defense Division, Federal Civil Defense Administration; (*d*) Medical Director of the American National Red Cross; (*e*) Chairman of the Special Study Committee for the Blood Program of the American National Red Cross; (*f*) Chairman of the Committee on Blood Banks of the American Hospital Association; (*g*) President of the American Association of Blood Banks, and (*h*) Secretaries of state medical associations and Chairmen of State Committees on Blood Banks.

Respectfully submitted,

LEONARD W. LARSON, Chairman.
HERBERT P. RAMSEY.
JOHN W. GREEN.
JAMES R. REULING.
DEERING G. SMITH.
JAMES Q. GRAVES.
JAMES STEVENSON.
WILLIAM D. STOVALL.

REPORT OF REFERENCE COMMITTEE ON HYGIENE AND PUBLIC HEALTH

Dr. Charles L. Farrell, Chairman, presented the following r port, which was adopted:

Your committee also received the report of the Committee (Blood Banks to the Board of Trustees. Your reference committ heartily commends the Committee on Blood Banks for an e cellent report. However, inasmuch as the shortage of qualifi personnel is the basic problem in providing inspection and tec nical advice to blood banks and federal legislation could r possibly correct this deficiency, your reference committee reco mends that the last sentence in the next to the last paragra under the heading "Status of the National Blood Program" revised to read "It is recommended that consideration be giv to methods of providing additional inspection service includi the deputizing of state departments of health as inspectors wh they possess qualified personnel in this field."

Inasmuch as blood derivatives such as gamma globulin, fibr ogen et cetera are important resources the demand for whi is increasing, and human blood is the only source of these sential preventive and therapeutic agents, your reference co mittee recommends that No. 4 of the recommended uses human blood be expanded to read: "For continuing daily us for civilian needs, including fractionation of appropriate blc donations to provide gamma globulin, fibronogen, serum al men and other essential derivatives."

Inasmuch as the public, as a result of having been educa to the life-saving value of blood, on occasion brings pressure the physician to administer blood where it is not definitely in cated, your reference committee heartily commends the Co mittee on Blood Banks for its forthright statement regarding conservation of blood, the necessity for its replacement and physician's obligation to avoid abuse of blood and blood pr ucts. The committee recommends the adoption of the report the Committee on Blood Banks as amended.

Report of Special Committee of House of Delegates to Review Organizational Structure of the Standing Committees of the House

Dr. Robertson Ward, Chairman, presented the following port, which was referred to the Reference Committee on Misc laneous Business:

At the June 1951 session of this House of Delegates, a s plementary report of the Board of Trustees concerning a cha in composition of the Council on Medical Service was conside by the Reference Committee on Amendments to the Const tion and By-Laws. That reference committee reported a sub tute resolution to the House of Delegates, which was adopte

"That a special committee of the House of Delegates be pointed by the Speaker to review the organizational structure the standing committees of the House of Delegates, especially their relation to the Board of Trustees, and report to the Ho of Delegates at the next interim session in Los Angeles."

Pursuant to that resolution, the Speaker of the House of De gates appointed a committee composed of Drs. Warren W. Fur Chicago; James R. Reuling, Bayside, N. Y.; George A. Unfi Pueblo, Colo.; Edgar V. Allen, Rochester, Minn.; Harold Gardner, Pittsburgh; George F. Lull, Chicago; John W. Cli San Francisco, and Robertson Ward, San Francisco, as Ch man.

The committee has made a careful study through extens correspondence and personal interviews of the attitudes a opinions of the members of the Standing Committees, subco mittees of the Standing Committees, members of the headqu ters staff and the Board of Trustees, and, on the basis of t study, presents the following conclusions and recommendatio

CONCLUSIONS

1. An organization cannot function effectively unless it h one individual as its responsible executive officer, who delega junior executive authority to staff employees assigned to vario councils and committees. The Board of Trustees of the Americ Medical Association should be responsible to the House of De gates and the membership for all activities of the Associatic and there should be no boards, commissions or councils wit the Association having equal status with the Board of Trustees a status independent of the Board. When the lines of authori

are clearly established through the responsible executive officer to the Board of Trustees and the House of Delegates, confusion and uncertainty are eliminated and personnel morale improved.

2. The Constitution and By-Laws of the American Medical Association clearly provide for a Board of Trustees with adequate executive authority and power to direct the affairs and activities of the Association between meetings of the House of Delegates. Article 8 of the Constitution reads:

"The Board of Trustees shall have charge of the property and financial affairs of the Association and shall perform such duties as are prescribed by law governing directors of corporations or as may be prescribed in the By-Laws."

Under the By-Laws, "Chapter X.—Committees of the House of Delegates Section 3. Relation of Board of Trustees to Committees," the Board of Trustees is given definitive and unequivocal authority with respect to these committees. This Section reads:

"Committees that function during the interval beween sessions of the House shall be under the direction of the Board of Trustees."

3. This committee believes that there has been some misunderstanding on the part of both the Standing Committees of the House of Delegates and the Board of Trustees with respect to their relationship and proper lines of communication. It is apparent that the Board of Trustees has been reluctant to interpret literally the provisions of Section 3, Chapter X of the By-Laws because of a feeling that it might be overstepping its authority. It is also obvious that in some instances a Standing Committee of the House of Delegates has interpreted that status to mean that the Board of Trustees had relatively little control over its activities.

4. It is apparent that the programs of the Standing Committees are at times not given sufficient publicity in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION so that many members are not aware of the work being accomplished.

5. A member of the Trustees serves ex officio as one of the members of the Standing Committees. In this capacity he is forced to vote both with the Standing Committee and with the Board and thus is placed in the position of plaintiff and judge.

6. During the course of its investigation, your special committee has observed that only the Board of Trustees is limited in its terms of office. It believes that the policy embodied by the limitation of terms of office is sound, since it prevents a self-perpetuating small group from dominating a committee.

RECOMMENDATIONS

1. That this House of Delegates express its appreciation to the Board of Trustees for the general excellence of the program being developed under its direction, and that it direct the Board of Trustees to conduct the affairs of the Association and coordinate all activities of Standing Committees as provided in the Constitution and By-Laws, especially Section 3, Chapter X of the By-Laws quoted above.

2. That differences of opinion that may arise among Standing Committees concerning the scope of their respective areas of activity be resolved by the Board of Trustees.

3. That the programs of the Standing Committees be given adequate publicity in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION by the submission of informative reports from the Standing Committees concerned.

4. That any Trustee member of a Standing Committee of the House of Delegates be ex officio without vote.

5. That a ten year limit be placed on the terms of office of members of Standing Committees of the House of Delegates, to be made retroactive to Jan. 1, 1947.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Warren W. Furey, Chairman, presented the following report, which was adopted:

The discussion on this report was one of commendation and approval of the recommendations made by the Special Committee. The only question raised in reference to the report had to do with the ten year limit on the terms of office of members of Standing Committees of the House of Delegates. It is the recommendation of your reference committee that this paragraph be changed to read:

"That a limitation similar to that imposed on the Board of Trustees by the By-Laws be placed on the terms of office of members of Standing Committees of the House of Delegates, and that the matter be referred to the Committee on Constitution and By-Laws to make the necessary adjustment."

Your committee recommends approval of the report as a whole, as amended.

Resolution on Honoraria for President and President-Elect

Dr. Julian P. Price, South Carolina, presented the following resolution:

WHEREAS, The positions of President and President-Elect of the American Medical Association have assumed greater and greater importance during recent years; and

WHEREAS, The men who fill these positions are being called on so frequently for addresses and conferences throughout the country that it is taking them away from their personal work for long periods of time; and

WHEREAS, These men are giving this time, without any reimbursement except for the payment of actual expense in travel and sustenance, resulting in a marked reduction in personal income; and

WHEREAS, This has brought about a condition whereby only men who are on a salary or who have extra financial reserves on which to draw are able to accept these positions without a serious financial sacrifice to themselves and their families; and

WHEREAS, Such a condition could deprive the American Medical Association of the services of men whose leadership is needed; and

WHEREAS, It is the custom with certain large institutions to pay their nonsalaried officers a per diem honorarium for time spent on official work away from their personal businesses; and

WHEREAS, It is believed that the vast majority of the members of the Association would be glad to have a small fraction of their dues go toward the payment of such a per diem honorarium to these men who are leading their Association; therefore be it

Resolved, That this House of Delegates of the American Medical Association looks with favor on the payment of a per diem honorarium, in addition to expenses, to the President and President-Elect of the American Medical Association for time spent in the work and activities of the Association while away from their homes, and requests the Board of Trustees to give the matter careful consideration and to put such a plan into effect if feasible.

Resolution on Honorarium for President of American Medical Association

Dr. R. B. Robins, Arkansas, presented the following resolution, which also was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The President of the American Medical Association devotes most of his time to the duties of his office at great financial sacrifice; and

WHEREAS, It is becoming the custom of other large national organizations to compensate their presidents for loss of time from their regular occupations; therefore be it

Resolved, That the House of Delegates instruct the Board of Trustees to grant the President an honorarium of not less than five thousand dollars and not more than ten thousand dollars in addition to the regular per diem and travel allowance.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Warren W. Furey, Chairman, submitted the following report, which was adopted:

Two resolutions relating to this same subject were considered. The first was presented by Dr. Julian P. Price, South Carolina, in reference to honoraria for the President and President-Elect, and the second by Dr. R. B. Robins, Arkansas, entitled Honorarium for President of American Medical Association. There was considerable general discussion by a large group. Feeling was expressed that such officers should be given liberal per diem honoraria. Your reference committee approves the liberal per diem allowance and recommends that the amount be left to the discretion of the Board of Trustees. It recommends approval of the resolution presented by Dr. Julian P. Price.

Resolution on Medical Care Insurance on Service Basis for Dependents of Members of Armed Forces

Dr. R. L. Novy, Michigan, presented the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

WHEREAS, Dependents of members of the Armed Forces at times need medical care under circumstances that involve financial hardships, lack of adequate governmental facilities or both; and

WHEREAS, The physicians of the United States through their sponsored prepayment plans are able to provide care to such dependents on a service basis; and

WHEREAS, Many citizens entering military service already have protected their dependents against costs of illness through voluntary insurance; and

WHEREAS, Blue Shield and other medically sponsored plans enable their members to receive high quality medical care with free choice of physician; and

WHEREAS, Labor and industry generally have recognized that medical insurance benefits for dependents are important in developing better employe morale; now therefore be it

Resolved, That if in the independent judgment of the Department of Defense or Congress the welfare of our preparedness program requires that dependents of members of our Armed Forces receive medical care on a service basis, then the medical profession stands ready to provide such service through Blue Shield and other medical society sponsored plans.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Raymond W. McKeown, *Chairman, submitted the following* report, which was adopted:

The Michigan delegation presented a Resolution on Medical Care Insurance on Service Basis for Dependents of Members of Armed Forces. After thorough deliberation your committee approved of the Michigan resolution.

Resolution on Fluoridation of Water Supplies

Dr. S. E. Gavin, Wisconsin, presented the following resolution, which was referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, There is conclusive and acceptable evidence that the ingestion of small amounts of fluorides during the period of tooth enamel formation produces a harder, more caries resistant enamel, thereby substantially and safely reducing the incidence of dental caries; and

WHEREAS, The fluoridation of water is a most effective approach to improving health through the prevention of dental decay and is economically advantageous to the public as well as the individual; and

WHEREAS, The fluoridation of public water supplies is approved and recommended by the American Public Health Association, the United States Public Health Service and the American Dental Association as in the interest of better health; now therefore be it

Resolved, That the House of Delegates of the American Medical Association endorse the principle of fluoridation of all public water supplies that are deficient in fluoride.

REPORT OF REFERENCE COMMITTEE ON HYGIENE AND PUBLIC HEALTH

Dr. Charles L. Farrell, *Chairman, submitted the following* report, which was adopted:

Your reference committee received two resolutions regarding the fluoridation of water supply, one submitted by Dr. Stanley Osborn of the Section on Preventive and Industrial Medicine and Public Health, and one by Dr. S. E. Gavin for the State Medical Society of Wisconsin. Your committee has heard testimony and reviewed literature on the subject and submits the following resolution as a substitute:

WHEREAS, Carefully controlled studies have demonstrated that fluoridation of water supply has been definitely beneficial in the reduction of dental caries in the younger age group; and

WHEREAS, The Council on Pharmacy and Chemistry has reported that fluoride is nontoxic in community water supplies up to one part per million; and

WHEREAS, The addition of fluoride to community water supplies seems to have merit; therefore be it

Resolved, That the House of Delegates of the American Medical Association endorse the principle of fluoridation of community water supplies.

Resolution on Purchase of Property in Washington

Dr. S. E. Gavin, Wisconsin, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The Washington office of the American Medical Association is recognized as a highly important information and research center serving members of Congress, government officials and agencies, members of the Association and others; and

WHEREAS, The effectiveness of this office would be greatly enhanced by convenient location and appropriate library and research facilities to provide more adequately for study, analysis and reporting in circumstances demonstrating not only the ideals and dignity but the efficiency of the Association; and

WHEREAS, The location and the cost of maintaining desirable rental property will be a continuous problem for the Association; therefore be it

Resolved, That the House of Delegates of the American Medical Association urge the Board of Trustees to purchase suitable property in Washington, D. C., to serve as a permanent headquarters for the Washington office of the Association.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Warren W. Furey, Chairman, presented the followin report, *which was adopted:*

This matter was discussed and your reference committee, afte due consideration, *reports support of the resolution* in principl but recommends the following changes in the resolution to rea as follows:

Resolved, That the House of Delegates of the American Medical Ass ciation authorize the *Board of Trustees* to consider the purchase of su able property in Washington, D. C., at an opportune time to serve as permanent headquarters for the Washington office of the Association.

Your committee approves of the resolution as amended.

Resolution on Emergency Seating of Alternate Delegates

Dr. *John J. Curley, Massachusetts*, submitted the followin resolution, which was referred to the *Reference* Committee o Amendments to the Constitution and By-Laws:

WHEREAS, The House of Delegates of the American Medical Associatic has expressed its opinion that all states and territories should be rep sented at all times in sessions of the House of Delegates; and

WHEREAS, The House of Delegates approved a change in the Constit tion and By-Laws of the American Medical Association at its 1951 annu session whereby in emergencies a responsible state officer may designa an alternate to represent a delegate, if such delegate is taken ill or call away from a meeting of the House of Delegates; and

WHEREAS, It is often difficult to get a state officer, namely the Preside or Secretary of a state or territorial association, to give a written crede tial to an alternate; and

WHEREAS, Often the President or Secretary of a state or territorial ass ciation is not present at the meetings of the House of Delegates; and

WHEREAS, Some state and territorial associations elect a specific alterna for each delegate to the meetings of the House of Delegates; therefo be it

Resolved, That in case of emergency as designated by the House Delegates and in case a responsible officer of a state or territorial medic association cannot give written credentials to an alternate of that sta or territorial medical association, a majority of the delegates of such sta or territorial medical association shall be allowed to designate any du *elected alternate to represent that* state or *territorial medical* associatic for the remainder of the meeting of the House of Delegates. In the stat or territories where one to three represent the above mentioned asso ations, the single member or the two remaining members shall be permitt to choose the alternate to represent their state or territory if a responsib state or territorial officer cannot be reached to designate the alternate represent the absent delegate.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Dr. Leo F. Schiff, Chairman, presented the following repo which was adopted:

The resolution presented by Dr. John J. Curley for the Mass chusetts delegation, proposes a method of designation of a su stitute delegate when, in emergency, the regularly elected del gate or alternate cannot serve and a responsible officer of constituent state or territorial medical association cannot reached in time to furnish written credentials for such substitu

Although an amendment to the By-Laws adopted at the annu session in 1951 would seem to authorize appointment of a del gate for a constituent association under certain emergency cond tions, Section 2 of Article 6 of the Constitution states: "Th House of Delegates is composed of delegates *duly elected* by th constituent associations. . . ." In the opinion of your com mittee, the action requested cannot be taken without amen ment of the Constitution. Further, your committee believes th the third paragraph of Section 1 (D) of Chapter IX of the By Laws is not in accordance with the Constitution, and therefo recommends that the resolution be referred to the standin Committee on Constitution and By-Laws and, further, that th committee be requested to review Section 1 (D) of Chapter I of the By-Laws in reference to its constitutionality.

Resolution on Fluoridation of Public Water Supplies

Dr. Stanley H. Osborn, Section on Preventive and Industria Medicine and Public Health, submitted the following resolution which was referred to the Reference Committee on Hygiene an Public Health:

WHEREAS, Accumulated evidence indicates a sound basis for the fluorida tion of public water supplies for the control of dental caries; and

WHEREAS, All evidence to date supports this promising preventive denta health measure wherever it has been instituted; therefore be it

Resolved, That the House of Delegates of the American Medical Asso-iation approve the fluoridation of public water supplies as a safe, eco-omical and effective method of reducing the prevalence of dental caries f the people.

The report of the Reference Committee on Hygiene and Pub-ic Health on the above resolution will be found following the esolution on Fluoridation of Water Supplies presented by Dr. avin of Wisconsin on page 1698.

Resolution on Congressional Investigation of the Teaching of Collectivism in Schools

Dr. Eugene F. Hoffman, California, presented the following solution, which was referred to the Reference Committee on egislation and Public Relations:

WHEREAS, There has been some misunderstanding concerning the resolu-n adopted by the House of Delegates in June 1951, calling for a ongressional investigation of the teaching of collectivism in our schools; it

Resolved, That the American Medical Association hereby reaffirms its lief in and support of the American public school system as a bulwark our constitutional republic and that system must exercise its proper nction of disciplining and instructing our youth in order that they on e attainment of maturity may assume their rightful positions as respon-le and productive citizens; and be it further

Resolved, That the attention of every American is once again directed the dangerous inroads on our national thinking already achieved by e insidious philosophy of collectivism. Those educators who have seen is danger and are opposing it deserve our hearty commendation and thusiastic support. Those who have attempted to pervert our school stem from its true educational function to that of indoctrination should relieved of further opportunity to achieve their goals.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. R. B. Robins, Chairman, submitted the following report, hich was adopted:

The committee approves of the resolution and recommends its loption.

Resolution on Death of Dr. James Edgar Paullin

Dr. Eustace A. Allen, Georgia, presented the following reso-tion, which was adopted by a unanimous rising vote on motion ly made, seconded and carried:

American medicine has been fortunate in having great men as its leaders ing the past fifty years. Dr. James Edgar Paullin was among those o did much to elevate the standing of our profession to its present ition. His apprenticeship was served with Sir William Osler and the s and ambitions of his great teacher were emulated throughout his fessional career. Dr. Paullin's contributions to medical education, earch, national defense and organized medicine will not be surpassed any one of our time. Integrated with his professional ability was a rm personality which endeared him to all who were associated with him.

To lament the passing of one so great is the usual pattern of such a olution. More fitting for Dr. Paullin's passing, however, is an expression gratitude for his years of service to American medicine. He served many years in the House of Delegates and was President of the merican Medical Association in 1943.

Longfellow, with his poetic ability, has well described Dr. Paullin's pact on American medicine in the following lines:

> "So when a great man dies,
> For years beyond our ken
> The light he leaves behind him lies
> Before the paths of men."

The end came as he wished, suddenly, while working among his friends d associates of many years and with his family; therefore be it

Resolved, That the House of Delegates of the American Medical Asso-tion wishes to express its feeling of an irreplaceable loss in the death Dr. James Edgar Paullin on August 13, 1951; and be it further

Resolved, That a copy of these resolutions be forwarded to the family our deceased friend.

Resolutions on Death of John F. Hayes

Dr. H. G. Hamer, Indiana, presented the following resolutions, hich were referred to the Reference Committee on Miscel-neous Business:

WHEREAS, In the death of John F. Hayes, the medical profession has st a friend and champion whose wise and valiant efforts on its behalf ave entitled him to the lasting gratitude of the profession; and

WHEREAS, The medical profession of the State of Indiana in particular kes special pride in the fact that he was born in this state, and for at reason would like to have the privilege of initiating the action through hich a memorial to him may be preserved not only in the records of he Indiana State Medical Association, but also in the records of the merican Medical Association; now therefore be it

Resolved, That the permanent records of the Indiana State Medical Association shall include this resolution in which is incorporated the following statement regarding him:

John F. Hayes, whose death occurred on Sept. 17, 1951, leaves an inspiring record of achievements which have made the country, and particularly the medical profession of America, deeply his debtor. He was born in Indiana and graduated from the Indiana Law School in 1898. He expected from his childhood to earn his way in the world and not have it opened out before him because of the fortunes of birth or the favors of gratuitous patronage. He became a competent stenographer and in that capacity was employed by the late Senator Albert J. Beveridge, whose achievements have entitled him also to undying fame as one of the great statesmen and authors of America.

Mr. Hayes was not content to do what was merely within the call of duty of his employment. Beyond the call of only that duty he studied intensively the subjects covered by his stenographic notes. He not only did the manual work of typing, but contributed brilliantly to the very language of such legislation as the Federal Meat Inspection Act, the Tariff Commission Act and child labor legislation.

This country could not function and our liberties be preserved if people were indifferent to politics. It is the means through which self-government is carried on. From 1909 to 1912, Mr. Hayes was the secretary of the Indiana State Republican Committee. Senator James E. Watson of Indiana, on being elected to the Senate in 1916, appointed Mr. Hayes as his secretary, in which position he served until 1935 when he entered into the law practice in Washington, D. C., which he continued until his death.

For many years he was associated with the Bureau of Legal Medicine and Legislation of the American Medical Association, in which position he served with the same quiet, unostentatious efficiency as in every other position he occupied.

The life and work of Mr. Hayes stands as the proof that modesty and contentment with one's own soul's applause may be retained by a person and still that person may render a distinguished political service in America. Senator James Watson said of him, "To the ability and industry of John F. Hayes in the discharge of his duties, I owe much of my success in public life."

The name of John F. Hayes should be cherished in the memory of the medical profession of Indiana and of the whole United States and of all who knew him or may ever read this memorial, as a man who has in quietness and modesty demonstrated, to the inspiration of all, how much may be accomplished through "one man's plain truth to manhood and tained in this resolution; and be it further

Resolved, That the Indiana delegation to the House of Delegates of the American Medical Association be authorized and instructed to present a motion in that House to adopt a resolution to accept and make a part of the records of that Association the memorial to John F. Hayes contained in the resolution; and be it further

Resolved, That a copy of this resolution be sent to his widow, Mrs. Mary Carson Hayes, and to his son, John Hamilton Hayes, with the sympathy and condolence of the members of the Indiana State Medical Association.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Warren W. Furey, Chairman, presented the following report, which was adopted:

Your reference committee concurs in the sentiments of the Resolution on Death of John F. Hayes and recommends approval of the suggested recording of the memorial.

Resolution on Deferment of Chiropractic Students

Dr. A. S. Giordano, Indiana, submitted the following resolution, which was referred to the Reference Committee on Medical Military Affairs:

WHEREAS, It has been reported that on September 27, 1951, under the Universal Military Training and Service Act, a regulation was promulgated under which students of chiropractic were made deferable on the basis that they were students of a healing art and should be included among deferable students, such as students of engineering, chemistry, medicine, dentistry and other scientific subjects; and

WHEREAS, Other students who are made deferable must be students of recognized schools and colleges maintaining standards of sound educational merit, while no school of chiropractic exists in America that maintains educational standards the equivalent of the standards maintained in the other schools in which deferable students are enrolled; and

WHEREAS, It has been scientifically demonstrated that chiropractic is without merit as a healing art and that no school of chiropractic gives training adequate to prepare any of its students for service useful to mankind as practitioners of any art of healing; and

WHEREAS, Chiropractors, without first acquiring or attempting to acquire adequate preparation in the nature of true scientific study, are continuously engaged in an effort to obtain unmerited recognition in the Armed Forces and the civilian population of the United States as properly trained practitioners of a healing profession and are trying to accomplish their purpose solely through lowering the standards of education and training presently required for such recognition; and

WHEREAS, Heretofore no recognition has been given to chiropractors in the Armed Forces of the United States, and chiropractic services are not used in treating wounds or diseases in the public health services nor in the Armed Forces of the United States; and

Whereas, Whatever is done to lower the standards of medical care, either in the Armed Forces or in the civilian population, is against the best interests of the public and for that reason should be vigorously opposed and resisted; and

Whereas, Anything that is done by the Government, which may be construed as something in the nature of recognition of merit in chiropractic, will certainly be immediately seized upon and used by chiropractors for propaganda purposes in behalf of their own commercial interests but to the disadvantage of the public; therefore be it

Resolved, That the Indiana State Medical Association hereby protests against any regulation under which students of chiropractic may be deferred on that ground under the Universal Military Training and Service Act; that the association recommends that chiropractic students be eliminated from the groups who are deferable under that law; that the Indiana delegates to the American Medical Association be, and hereby are, instructed to present to the next meeting of the House of Delegates of the American Medical Association a resolution of the same nature as this one and work for its adoption; and be it further

Resolved, That a copy of this resolution be mailed to the President of the American Medical Association and to the presidents of the various state medical association and also to the members of the Senate and House of Representatives from the State of Indiana, to the Surgeon General of the United States, to the Secretary of Defense of the United States and to the President of the United States.

Report of Reference Committee on Medical Military Affairs

Dr. H. L. Pearson Jr., Chairman, submitted the following report, which was adopted:

For the resolution presented to the House by the Indiana Delegation pertaining to the deferment of chiropractic students under the Military Training and Service Act your committee presents the following substitute resolution:

Whereas, The Universal Military Training and Service Act of 1951, as amended, provides for the possible deferment of students of chiropractic, among others, under the Selective Service System; and

Whereas, It has been scientifically demonstrated that chiropractic is without merit as a healing art and that there is no current need in the Armed Forces for graduates of schools offering such instruction; therefore be it

Resolved, That the American Medical Association hereby protest against the promulgation of any regulation by the Selective Service System under which students of chiropractic may be deferred under the Universal Military Training and Service Act of 1951, as amended.

Resolution on Medical Fees

Dr. George Braunlich, Iowa, submitted the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, It is self-evident that to increase medical or hospital fees because a patient is covered by insurance is unfair, discriminatory, inflationary and contrary to fair play; therefore be it

Resolved, That it is unethical for a physician to increase his fee because that fee is to be paid by an insurance company, directly or indirectly.

Report of Reference Committee on Miscellaneous Business

Dr. Warren W. Furey, Chairman, presented the following report, which was adopted:

This resolution was discussed at length. It is the opinion of the reference committee that the substance of this resolution is already contained in the Principles of Medical Ethics, and it is the feeling of the reference committee that it could be handled readily at the local level by ethics and grievance committees. Your committee, therefore, recommends that the resolution be not adopted.

Resolution on Cancellation of Delinquent Dues

Dr. J. Duffy Hancock, Kentucky, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The American Medical Association has distinguished itself as a guardian of the health and medical welfare of the people and has demonstrated its vigor and effectiveness in the battle against compulsory insurance; and

Whereas, It is most desirable that the American Medical Association not only maintain but increase its capacity to carry on the battle against disease, quackery and socialism; and

Whereas, Its policy of requiring all members of state medical associations up to and including 1950 to pay 1950 American Medical Association dues of $25.00 before being able to join the American Medical Association in 1951 or any subsequent year arouses resentment on the part of some of the members and has a tendency to reduce its usefulness; and

Whereas, This policy not only creates antagonism for the American Medical Association but also generates ill feeling for the state association officers who attempt to collect back American Medical Association dues; and

Whereas, This policy is creating much additional and unnecessary work and correspondence for the state medical association officers; therefore be it

Resolved, That the House of Delegates rescind its action and allow a encourage all members in good standing of state medical associatio before or during 1950 who did not pay American Medical Associatio dues in 1950 to join the American Medical Association in 1951 or su sequent years without penalty or prejudice.

Report of Reference Committee on Miscellaneous Business

Dr. Warren W. Furey, Chairman, presented the following r port, which was adopted:

The implications of this resolution were considered at leng and discussed freely by representatives of many state delegation by officers and by members of the American Medical Associ tion. It is the feeling of your reference committee that blank remission of dues as contained in the resolution might crea further misunderstanding and confusion. Your committee reco nizes that a solution of this problem which would permit co tinuous enlargement of the membership should be encourag It therefore recommends a substitute resolution:

Resolved, That the House of Delegates give to the Secretary of t American Medical Association the authority to negotiate with each st organization separately as to the method of correcting misunderstandi which exist relative to the collection of 1950 dues only.

Resolution on Blue Cross Benefits for Use of Physicians' Office Facilities

Dr. J. Duffy Hancock, Kentucky, submitted the following res lution which was referred to the Reference Committee on I surance and Medical Service:

Whereas, Blue Cross hospitalization insurance plans are usually limi by enabling acts to pay benefits to hospitals only; and

Whereas, It appears desirable from both an economic and pu service aspect that such plans should pay benefits when subscribers m use of physical facilities and supplies in a physician's office in lieu being admitted to a participating hospital where similar facilities are av able; and

Whereas, Many medical services for which subscribers now request a mission to a hospital could be equally well rendered in a physician's of with consequent reduction in the total claim against Blue Cross; and

Whereas, In many areas additional costs are incurred transporting patient to a hospital when the emergency care could more properly a efficiently be rendered in a local physician's office; and

Whereas, Revisions in Blue Cross policies to provide for payment physicians for use of their own office facilities, equipment and suppl only, not including professional services, which may be covered un Blue Shield plans, would result in a savings to Blue Cross plans and resultant conservation of the funds available for benefits of their insur now therefore be it

Resolved, That this House of Delegates instruct its Council on Medi Service to confer with the Blue Cross Commission in an endeavor effect a revision in Blue Cross plans that will provide for payment to p sicians for use of their facilities, but not services, when such facilities used in lieu of hospital facilities under an agreed fee schedule.

Report of Reference Committee on Insurance and Medical Service

Dr. Raymond M. McKeown, Chairman, presented the f lowing report, which was adopted:

The resolution introduced by the delegate from Kentucky w most thoroughly discussed. The substance of the Kentucky re lution namely, interrelationships between Blue Cross and Bl Shield, is of deep interest and concern to all physicians over th country. However, it was felt by your committee that the exists procedural technic by which these differences can settled at the state level. It was further felt that through a stron ly united medical profession such problems as existed he could readily be cleared. The resolution from Kentucky was n approved.

Resolution on Medical Care of Veterans

Dr. James Z. Appel, Pennsylvania, presented the followi resolution, which was referred to the Reference Committee o Legislation and Public Relations:

Whereas, The American Medical Association has welcomed the opp tunity to contribute to the medical care of veterans through the mediu of the Veterans Administration hospitals within the nation, wishing to its share in assuring the finest care to all who have sustained disabili or illness in defense of their country; and

Whereas, Proper and amicable relationship of the doctors of the nati with the Veterans Administration is essential for the provision of su first quality care to patients in these institutions; and

Whereas, Blue Shield Plans and other facilities for voluntary prepa medical care insurance have been established as cooperative enterprises doctors and the public, and many veterans are subscribers or beneficiari of such medical care insurance plans; and

Whereas, It is an established fact that in spite of regulations to the contrary, veterans with non-service-connected disabilities and illnesses and who are subscribers or beneficiaries of medical care insurance plans are being hospitalized in Veterans Administration hospitals without valid reference to their obvious ability to finance medical care; therefore be it

Resolved, That this House of Delegates of the American Medical Association instruct the Board of Trustees of the American Medical Association to attempt, through proper channels, to have legislation introduced into the Congress of the United States which would have the effect of canceling the present inequities now permitted under the law and would provide hospitalization, necessary transportation and domiciliary care to all veterans for service-connected disabilities, and for non-service-connected disabilities to render similar care only in those cases of proven inability to pay either by cash or by prepayment insurance.

Resolutions on Use of Veterans' Facilities by Veterans with Non-Service-Connected Disabilities

Dr. James P. Wall, Mississippi, submitted the following resolutions, which also were referred to the Reference Committee on Legislation and Public Relations:

Whereas, When the adoption of The American Constitution was under discussion, John Adams, "The Father of the Constitution," uttered this truism: "You have certain rights antecedent to all earthly governments; rights that cannot be repealed or restrained by human legislation; rights derived from the Great Legislator of the Universe"; and

Whereas, Among these rights, guaranteed by the Constitution, is the right of appeal and petition; and

Whereas, The American citizen is entitled to and demands the privilege to express his views on all matters that affect him and is very reluctant to yield this interest to pressure groups, however well organized, motivated by aggrandizement, nurtured by the long exercise of special privilege; and

Whereas, The veterans of our armed services are entitled to the lasting regard of the citizenry, for they have given and been given that we might live and have an abundant life; if such a veteran has suffered a disability because of his term of service, it is agreed by all that it is the solemn obligation of his Government to rehabilitate him as far as possible to his state of comfort and usefulness before his duty with the armed forces; the soldier who on his discharge from duty has no disability, actual or exaggerated, due to his services in the armed forces, is not and should not be the beneficiary of tax money for the relief of illness acquired after a period, when such illness cannot be connected with his term of service in the Armed Forces, because a soldier's patriotism should be for the perpetuation of his Government and not for pecuniary gain; and

Whereas, Dependent on the different localities of the Nation, the Veterans Hospitals' beds are occupied by veterans with non-service disability from 66 per cent to 83 per cent of the hospitals' bed capacity; such a veteran's occupancy of such a bed is a form of paternalism or even an entering wedge to the socialization of medicine and should not be tolerated; there are voluntary insurance plans that are adequate to care for the non-service veterans' disability; therefore be it

Resolved, By the House of Delegates of the American Medical Association, in interim session in Los Angeles, California, December 4-7, 1951, that we do whole-heartedly commend the United States Veterans' Administration in its most laudable effort to rehabilitate veterans with service-connected disability, but we strongly deprecate the use of the Veterans' Facilities by veterans without service disabilities; and be it further

Resolved, That a copy of this resolution be forwarded to the proper committee of the Congress that has the consideration of veterans' legislation.

Resolution on Medical Care of Veterans

Dr. C. M. Hamilton, Tennessee, introduced the following resolution, which also was referred to the Reference Committee on Legislation and Public Relations:

Resolved, By the House of Delegates of the American Medical Association that we recommend to the Congress of the United States the adoption of a program of medical and hospital benefits for veterans as follows:

Part 1. That the veterans who require hospitalization for the following types of disabilities be eligible for services in veterans' hospitals:

A. Service-connected disabilities.
B. Tuberculosis.
C. Mental illness.
D. Other forms of chronic illness which require hospitalization for more than ninety days.
E. Disabilities in dispute as to whether service-connected or not.

Part 2.

A. That a standard medical and hospital insurance policy be purchased at government expense for the benefit of every veteran who is unable to pay the premium cost of such coverage.
B. That the insurance coverage embrace disabilities which require hospitalization, excepting those outlined in Part 1, and disabilities which are covered by compensation laws or other forms of public liability.
C. That "the ability to pay" for such insurance coverage be determined on the basis of "the taxable income" of the veteran as determined for federal income tax purposes.
D. That the Congress of the United States determine the income level at which the veterans would cease to be eligible for this benefit.
E. That the insurance policy be written on an annual basis.
F. That the government, through existing agencies, issue checks to eligible veterans which are payable only for purposes of such insurance coverage, and cashable only when signed by the veteran and countersigned by an approved insurance company.

Report of Reference Committee on Legislation and Public Relations

Dr. R. B. Robins, Arkansas, presented the following report, which, after discussion, was adopted:

The resolutions introduced by Dr. J. P. Wall, Mississippi, regarding veterans' facilities for non-service-connected disabilities, the resolution presented by Dr. James Z. Appel, Pennsylvania, regarding medical care of veterans and the resolution presented by Dr. C. M. Hamilton, Tennessee, regarding medical care for veterans, which cover the same basic subject, were read and considered with deep interest, they have been the subject of extensive discussion at the hearings before this committee. Particularly we wish to commend Dr. H. H. Shoulders of Tennessee for the persevering, conscientious, earnest effort he has made toward a solution of the complex problem with which we are faced in dealing with non-service-connected disabilities of veterans and their medical care.

Inasmuch as this problem concerns many groups, such as veterans' organizations, voluntary hospital associations, civilian medical care, voluntary insurance organizations and many others, this committee recommends that the entire problem be referred to the Board of Trustees. It further recommends that the Board, at an early date, create a special committee to consider this complex problem in conference with other groups involved at the top flight or policy making level. Your committee realizes that this is a matter which requires persistent, continuous study, and definitely urges the Board of Trustees to make a report of the activities of the special committee at the June session in Chicago.

Resolutions on Critical Materials

Dr. J. Stanley Kenney, New York, introduced the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, The strength of our nation depends in large measure on the health of the American people, both those in the Armed Forces and those in our vital industrial and agricultural economies; and

Whereas, Health and medical services are highly essential activities directly supporting national defense; and

Whereas, Manpower available for civilian medical care is decreased in times of national emergency, making hospitals more necessary as a means of extending the available medical skills; and

Whereas, The amount of controlled materials provided for proposed new construction projects is insufficient to maintain the necessary level of hospital construction; therefore be it

Resolved, That the American Medical Association urgently requests the establishment of a high degree of priority for materials for construction of hospitals and health facilities and for fabrication of medical equipment and supplies where need can be shown, so that our national health can be properly maintained; and be it further

Resolved, That this resolution be transmitted to the Director of Defense Mobilization.

Report of Reference Committee on Miscellaneous Business

Dr. Warren W. Furey, Chairman, presented the following report, which was adopted:

Your reference committee discussed the contents of the Resolutions on Critical Materials and is in sympathy with the recommendations. It therefore recommends approval of the resolutions.

Resolutions on Deficient Teaching Programs of Dermatology and Syphilology of Some Medical Schools

Dr. Everett C. Fox, Section on Dermatology and Syphilology, introduced the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

Whereas, The American Medical Association is interested in well-trained general practitioners of medicine; and

Whereas, Dermatology and syphilology constitute a large segment of the practice of medicine as a whole; and

Whereas, Eight per cent of all admissions to military hospitals during World War II were dermatologic patients; and

Whereas, Twelve to fifteen per cent of all questions in Queries and Minor Notes in The Journal of the American Medical Association pertain to dermatology and syphilology; and

Whereas, *It has come to the attention of this Section that there is a* wide disparity in regard to the allotment of time devoted to the teaching of dermatology and syphilology, verging almost to complete neglect in some medical colleges; therefore be it

Resolved, That the Section on Dermatology and Syphilology of the American Medical Association deplores the deficient teaching programs of dermatology and syphilology of some medical schools; and be it further

Resolved, That this resolution be brought to the attention of the House of Delegates of the American Medical Association, the Board of Trustees, the Council on Medical Education and Hospitals and the Special Committee on Medical Education.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. Joseph D. McCarthy, Chairman, submitted the following report, which was adopted:

The Council on Medical Education and Hospitals has requested that these resolutions be turned over to the Council so that the recommendations contained therein may be put in force. Your committee recommends the adoption of these resolutions.

Resolution on Approval of Internships

Dr. W. W. Baum, Oregon, read a Resolution on Approval of Internships (see THE JOURNAL, Nov. 24, 1951, page 1241), which was referred to the Reference Committee on Medical Education and Hospitals.

The report of the reference committee will be found in the third paragraph under the sideheading "Graduate Training" following the report and supplementary report of the Council on Medical Education and Hospitals on page 1689.

Resolutions on Proposed Amendment to By-Laws to Include General Practitioner Award

Dr. John F. Burton, Oklahoma, introduced the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws:

WHEREAS, The American Medical Association since 1948 has selected a "General Practitioner of the Year" and made an appropriate presentation to him; and

WHEREAS, This presentation has been a fitting and proper tribute to the general practitioner of the year and through him a tribute to the dedication to mankind of the members of the medical profession; and

WHEREAS, This recognition by the American Medical Association of the very real contributions of general practitioners to the health of the people of this Nation has inured to the benefit of the people and the profession; therefore be it

Resolved, That Division Three of the By-Laws be and is hereby amended by the insertion after the present Chapter XV, of the following words and figures which shall be designated Chapter XVI.

"CHAPTER XVI.—GENERAL PRACTITIONER'S AWARD

"Section 1. BOARD TO ESTABLISH AWARD.—The Board of Trustees shall prepare and arrange for the presentation annually, at the Clinical Session, of a suitable General Practitioner's Award of the American Medical Association, to a Member of the Association selected by the House of Delegates as General Practitioner of the Year in accordance with such procedure as the House of Delegates may prescribe."; and be it further

Resolved, That present chapters in Division Four be renumbered as Chapters XVII, XVIII, XIX and XX consecutively.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Dr. Leo F. Schiff, Chairman, presented the following report, which was adopted:

The resolutions presented by Dr. John F. Burton, Oklahoma, propose an amendment to Division Three of the By-Laws to provide for the annual presentation of a General Practitioner Award. Your committee feels that it is inadvisable at this time to amend the By-Laws for this purpose. This award was established by action of the House of Delegates and has been continued each year. The authority given by this action of the House is sufficient to continue the practice so long as it may seem advisable. Your committee therefore recommends that these resolutions be not adopted.

Resolution on Place of Interim Sessions of House of Delegates

Dr. George A. Woodhouse, Ohio, presented the following resolution which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, It has been customary for the House of Delegates to hold its interim session during the clinical session of the American Medical Association; and

WHEREAS, This has required excessive travel on the part of many delegates who seldom have time to attend the clinical sessions; and

WHEREAS, This requires travel on the part of many members of the staff of the Chicago office of the American Medical Association to some distant city and the shipment of many records and supplies from Chicago, entailing considerable expense to the Association; therefore be it

Resolved, That the present plan of holding the annual clinical session of the American Medical Association at various geographical centers throughout the country should be continued, but the annual interim session of the House of Delegates should not be held at the time and place of the clinical session as it would be more practical for the House of Delegates to hold its interim business session in the city of Chicago, preferably during the month of December.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEO BUSINESS

Dr. Warren W. Furey, Chairman, submitted the follo
report, which was adopted:

There was considerable free discussion of the advant
and disadvantages of the clinical session and the concurrent
ing of the House of Delegates. The reference committee un
stands that the Council on Scientific Assembly is now stud
the problem. It is the feeling of the committee that the Co
should further study the problem, considering the necessit
delegates and officers coming to both meetings, of the fin
involved and the travel difficulties encountered. Your comm
therefore, recommends no action at this time.

Resolutions on Health Problems of the Older Work

Dr. Donald Cass, California, introduced the following
lutions, which were referred to the Reference Committe
Industrial Health:

WHEREAS, Manpower requirements for defense industry have neces
the employment of many older age workers; and

WHEREAS, Prolongation of life induces an aging population with ch
demands for health, employment and retirement; and

WHEREAS, These trends strongly influence future demands on the m
profession in general and occupational medicine in particular; the
be it

Resolved, That the Council on Industrial Health extend its intere
activities in the investigation of the health problems of the older w
and be it further

Resolved, That this project receive essential financial support; and
further

Resolved, That the Council report its findings to the House
earliest opportunity.

REPORT OF REFERENCE COMMITTEE ON INDUSTRIA HEALTH

Dr. Millard D. Hill, Chairman, presented the following r
which was adopted:

The committee recommends the adoption of this resol

Message from Miss Hattie A. Niehoff

The Speaker informed the House of Delegates regard
message received from Miss Hattie A. Niehoff, as follows:

Shortly after the conclusion of the June session, I had a
delightful letter from our good friend, Miss Hattie Niehoff
said that she was quite disturbed and naturally unnerv
the presentation of the purse to her from the members o
House of Delegates and her friends, and she had not for
presented her thanks. She asked me to do that today.

Presentation of General Practitioner's Medal to Dr. A. C. Yoder

Dr. John W. Cline, President, introduced to the Hou
Delegates Dr. A. C. Yoder, Goshen, Ind., was was e
General Practitioner of the Year by the House on Dece
4, and presented to him the gold General Practitioner's M
Dr. Yoder addressed the House briefly.

Presentation of Citation to Dr. Kellogg Speed

Dr. E. J. McCormick, Trustee and Chairman of the Adv
Committee on Scientific Exhibit, introduced Dr. Kellogg S
Chicago, and presented him with a citation for his conduct
the years of the Association's Exhibit on Fractures.

Broadcast by N. B. C.

Dr. Elmer L. Henderson, Past President, announced tha
National Broadcasting Company will put on on Sunday,
cember 9, a thirty minute "live" broadcast of activities of
American Medical Association at the Los Angeles *Clinical*
sion, which will be of no expense whatever to the Associa

The House of Delegates extended a vote of thanks to
National Broadcasting Company for this delightful gesture

Motions of Appreciation

On motions duly made, seconded and carried, express
of appreciation were made to the Co-Chairmen of the L
Committee on Arrangements, Drs. J. Walter Scott and J.
Ludwig, the City of Los Angeles, and the local Chambe
Commerce, and a rising vote of thanks was given to the
ordinating Committee of the American Medical Association
the splendid public program on the night of Wednes
Dec. 5, 1951.

MEDICAL NEWS

CONNECTICUT

Sociologist Appointed to Pediatric Department.—The Yale University School of Medicine has appointed for the first time a sociologist to the staff of its department of pediatrics "to add o the effectiveness of medical care for children." The sociologist, who will hold the rank of research assistant, will actually have a special sociology internship in pediatrics. The appointment, which is supported by the Russell Sage Foundation, is for one year but will be renewable if results are promising. Because the rend of modern knowledge emphasizes the importance of treatng the patient as a "whole person" and not merely as a "sick ody," it is believed that the effect of the hospital environment n the sick child and on his family needs reevaluation and that he services of a sociologist will be of value.

LLINOIS

Open State Narcotic Clinics.—The Illinois Department of Public Health has opened two state narcotic clinics in Chicago. The rst is located at Provident Hospital on Chicago's South Side, nd the second at the University of Illinois Research and Eduational Hospitals on the West Side. Another is to be opened n the North Side as specified in an act passed by the last general assembly. These clinics were created primarily for the revention of drug addiction among Chicago youths and the reabilitation of addicts who have received treatment elsewhere. perating expenses are to be underwritten by the state health epartment, which made an appropriation of $90,000 for setting p the clinics. At Provident Hospital the clinic is staffed by a sychiatrist, a clinical psychologist, a psychiatric social worker, nd a field social worker. Dr. Walter A. Adams, head of the sychiatric staff, is director there. It will be conducted as an utpatient center handling about 30 patients weekly, giving such rvices as psychiatric, psychological, and medical counseling. will be a source of information to parents who believe their ildren may be using drugs. The rehabilitation program will onsist of counseling and assisting persons discharged from uch sources as the U. S. Public Health Service's hospital for arcotic victims at Lexington, Ky., and the Chicago House of orrection.

The Narcotics Research Clinic at the University of Illinois ill provide special study and treatment in about 30 selected ases per year to gain some information about the causes that ad adolescents to become drug addicts. Dr. Irene C. Sherman, ssistant professor of psychiatry, is director of the clinic.

Chicago

New Infant Station.—The new $192,000, 40-bed infant station Michael Reese Hospital was dedicated by members of Infants' id November 25. Infants' Aid, the women's organization that made possible the first premature infant station of the hospital years ago, is reported to have contributed more than $200,000 the nursery since its founding.

University Appointments.—Dr. Henrietta M. Herbolsheimer, eputy director of the Illinois Civil Defense Agency, has resigned to join the faculty of the University of Chicago as assistant professor of preventive medicine. Before joining the civil efense staff she had served as medical administrative assistant Dr. Roland R. Cross, director of the state department of ublic health.

KENTUCKY

Grants for Heart Research.—Two grants totaling $15,035 have been awarded for heart disease research by the U. S. Public Health Service to the University of Louisville School of Medicine. One grant of $5,635 will be used by Sheppard M. Walker, Ph.D., associate professor of physiology, to investigate the "chemical changes affecting the mechanical and electrical response of muscles," and the other of $9,400 was awarded Dr. Charles A. Woerner, associate professor of anatomy, for research in "the relation of fat metabolism to hardening of arteries."

LOUISIANA

New Surgical Society.—Surgeons of the medical schools of Tulane and Louisiana State universities have organized the New Orleans Surgical Society. Besides conducting scientific meetings, the group will make an annual trip to some other medical center. Officers elected to serve for the ensuing year are Dr. Alton Ochsner, president; Dr. James D. Rives, vice-president; Dr. Samuel A. Romano, treasurer; Dr. Marshall L. Michel, secretary; Dr. H. Reichard Kahle and George Burdette, members-at-large of the board of directors.

MICHIGAN

Research in Hematology.—A three-year grant to the Children's Hospital of Michigan in Detroit has been made by the Playtex Park Research Institute, New York, for the purpose of aiding research in certain phases of hematology. Dr. Julius Rutzky, New York, will carry out investigations in iron metabolism, prevention of iron deficiency anemia, and other hematologic problems under the direction of Dr. Wolfgang W. Zuelzer, director of laboratories for the hospital. Playtex Park Research Institute is a nonprofit, public service foundation sponsored by the International Latex Corporation for the support of research in the field of childhood diseases.

MINNESOTA

Personal.—Dr. Philip S. Hench and Edward C. Kendall, Ph.D., Rochester, were honored at a testimonial dinner November 29 at Coffman Memorial Union, University of Minnesota, Minneapolis. Each was presented with a special citation for distinguished service by the board of regents of the university. The ceremony was planned in conjunction with the nation-wide symposium on rheumatic fever held at the university.

State Rehabilitation Group.—The Minnesota Rehabilitation Association was formed at a recent meeting in Minneapolis to promote the welfare of the handicapped through improvement of standards of professional workers who serve them; encouragement of adequate facilities for treatment, education, and rehabilitation; education of the community to the problems of the handicapped; and sponsorship of programs that advance their welfare. Dr. Russell H. Frost, superintendent of Glen Lake Sanatorium, Oak Terrace, is president of the new group and Alice M. Christian, counselor of handicapped students at the University of Minnesota, is secretary.

NEW JERSEY

Shortage of Nurses Closes One Floor of Hospital.—Shortage of nurses was given as the reason for the announcement November 28 that one floor of the Margaret Hague Maternity Hospital at the medical center in Jersey City would close December 1. The closing would reduce the capacity of the hospital from 350 to 300 beds.

Hospital Unit for Alcoholics.—St. Michael's Hospital in Newark will open the first of the year a six-bed hospital unit for alcoholics. A fee of $85 will be charged for a five-day stay, three of actual treatment and two during which patients will see Alcoholics Anonymous members, who will supervise rehabilitation after patients are released.

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hysicians are invited to send to this department items of news of general nterest, for example, those relating to society activities, new hospitals, ducation and public health. Programs should be received at least three weeks before the date of meeting.

NEW YORK

Personal.—Dr. Harry C. Storrs, Thiells, was honored at the annual luncheon of the Welfare League for Retarded Children November 24, for 40 years of service to the mentally retarded. Dr. Storrs has been associated with Letchworth Village for 21 of those years as senior director. Letchworth Village, an institution for the care and treatment of the mentally retarded, has 3,800 patients.

Medical College Appointments.—Dr. William L. Holt, assistant clinical professor of psychiatry at Harvard Medical School and associate in psychiatry at the Boston Psychopathic Hospital, has been appointed professor and director of the department of psychiatry at Albany Medical College and psychiatrist-in-chief to Albany Hospital. Dr. Thomas F. Frawley, formerly research fellow in medicine at Harvard Medical School and assistant in medicine at Peter Bent Brigham Hospital, Boston, has been appointed director of the section of endocrinology and metabolism, a newly created subdivision of the department of medicine. Prior to his Albany appointment, Dr. Frawley was associated with Dr. George W. Thorn at Harvard in studies of adrenal cortical physiology, corticotropin (ACTH), and cortisone.

New York City

Dean for Graduate Studies.—Dr. James E. McCormack has been appointed associate dean for graduate studies and assistant professor of medicine at Columbia University College of Physicians and Surgeons. Dr. McCormack has served in the United States Office of Scientific Research and Development with the Committee on Medical Research, and was executive director in 1948-1950 of the Committee on Medical Science of the Research and Development Board in the Department of Defense. He remains a consultant to the board. Dr. McCormack was associate in medicine at George Washington University in 1948. In 1950 he was appointed associate dean and assistant professor of medicine at the Post-Graduate Medical School of New York University. He has been on the visiting staff of Bellevue and University hospitals.

Home Care Program Saves City Funds.—Public health nurses of the department of health assigned to the home care service program of the city health and hospital departments have saved the city more than $750,000 in the first nine months of this year and have freed 220 beds for acutely ill patients in Queens General and Triboro hospitals, the Bureau of Public Health Nursing reported December 2. Most of the more than 300 patients cared for at home are older persons suffering from heart disease, cancer, and other long-term chronic illnesses. The home care program was inaugurated by the city health and hospital departments in November, 1948. In Queens in the first nine months of this year health department public health nurses made 11,147 home visits to patients who are under medical supervision of the Queens General and Triboro hospitals. Service given saved 51,482 patient-days in Queens General and 17,194 patient-days at Triboro in these months. Care for these patients in the hospitals for this time would have cost the city $801,684.80. The health department budgeted $46,880 for its work in the home care service program, but actually spent less on the program.

OKLAHOMA

Imposter Fined in Federal Court.—Conviction of James Allen Nolen, self-styled "M.D." and operator of Radium Springs Sanitarium, Salina, for shipping misbranded drugs was reported November 18 by the Food and Drug Administration, Federal Security Agency. Found guilty on 20 counts, Nolen was fined $2,000 and placed on a year's probation. The defendant treated patients in his bath house "sanitarium" and sent them home with various types of medicines, some worthless and others dangerous. Among the latter were concoctions containing sulfathiazole and habit-forming drugs, with no warning to protect the patient from injury. It was also brought out at the trial that Nolen instructed diabetics to stop the use of insulin, which he claimed was unnecessary if they took his medicines. As to Nolen's medical status, the U. S. attorney said that the defend ant had filed a license which showed the applicant to have bee born in 1842, although Nolen is obviously not now 109 yea old. He charged that the defendant had filed his father's licens four years after the latter had died. He also brought out th the defendant had been denied a license to practice medicine the Oklahoma State Board of Examiners. This application w based on Nolen's claim that he was licensed in 1906 by the chi of the Cherokee Indians.

PENNSYLVANIA

Plaques for Centenarians.—For the fifth consecutive year t Medical Society of the State of Pennsylvania will present fram testimonials to all residents of the state who attain their 100 birthday during 1952. The testimonial plaques have been p sented by officers of the various county medical societies to Pennsylvanians. Relatives, friends, and family doctors are urg to send the names and addresses of Pennsylvanians who w become 100 years old during 1952 to the Medical Society of State of Pennsylvania, 230 State St., Harrisburg.

Philadelphia

Personals.—Dr. Francis G. Harrison, associate professor urology, has been promoted to professor of urology and chi of the department at the Graduate School of Medicine, Univ sity of Pennsylvania, and urologist at the Graduate Hospital the University of Pennsylvania.

Hospital Trust Fund.—Jewish Hospital has been awarded trust fund of nearly $900,000, the income from which is to used for "some specific purpose" to be determined by the exec tor and hospital officials, according to the will of Martin Fran 90-year-old retired manufacturer of children's clothing, who di July 6. In his will Mr. Frank suggested that the money be us by the hospital for the erection of a wing or ward devoted the treatment of specific diseases or for scientific research. also bequeathed $500 to endow a room at the hospital memory of his parents.

Appointments at Jefferson Medical College.—The followi appointments at Jefferson Medical College became effective the beginning of the school year: Dr. David M. Davis becar emeritus professor of urology and Dr. Theodore R. Fetter w appointed Nathan Lewis Hatfield Professor of Urology a head of the department; Dr. James R. Martin, emeritus p fessor of orthopedic surgery, was appointed associate dean the college, and Dr. Robert Bruce Nye, who has been assista professor of medicine, became assistant dean. Dr. Martin Sokoloff was appointed acting director of the department diseases of the chest, succeeding Dr. Burgess Lee Gordon, wh resigned to accept the presidency of the Woman's Medic College of Philadelphia. Dr. Hobart A. Reimann's resignatio as the Magee Professor of Medicine and head of the departme of experimental medicine was accepted by the board of trustee effective October 15.

TEXAS

Child Development Center.—A number of Galveston Count and Texas agencies have cooperated to establish the Child D velopment Center for Galveston County. The new center wi have special quarters provided by the Galveston school system Funds for the initial effort have been given by the Hogg Foun dation for Mental Hygiene and by the Galveston County Crip pled Children Society. The Child Development Center will b under the direction of Dr. C. Christopher Morris, II, associat professor of pediatrics at the University of Texas Medica Branch, Galveston; Willie M. Verniaud, department of pedi atrics of the medical branch, will be clinical psychologist The Child Development Center will be operated in close co ordination with the teaching, research, and service activities o the department of pediatrics of the University of Texas Medica Branch, Galveston, under the general direction of Dr. Arild E Hansen, chairman. All Galveston County schools are cooperating in the new venture.

Southwest Texas Medical Assembly.—The International Medical Assembly of Southwest Texas will be held at the Municipal Auditorium in San Antonio, January 22-24, under the presidency of Dr. Thomas H. Sharp, San Antonio. The preliminary program ists the following speakers, most of whom will present at least four papers. Their names and the titles of one of their lectures are as follows:

Richard B. Cattell, Boston, Management of Hyperthyroidism.
Raymond W. McNealy, Chicago, Newer View of Large Bowel Surgery.
Dwight E. Harken, Boston, Recent Developments in Heart Surgery.
Henry L. Bockus, Philadelphia, Some Cardiovascular Gastrointestinal Interrelationships.
H. [illegible] r, Mich., Management of Upper Gastro- [illegible]
Rolland J. Whitacre, Cleveland, Practical Points in Anesthesia for the Part-Time Practitioner.
Vincente Pardo Castello, Havana, Cuba, My Experience with the Modern Treatment of Syphilis.
John C. Burch, Nashville, Tenn., Urological Injuries in Gynecological Surgery.
Newell W. Philpott, Montreal, Canada, Clinical Management of the Toxic Patient.
Phillips Thygeson, San Jose, Calif., Eye Manifestations of Dermatological Diseases.
Guy A. Caldwell, New Orleans, Minor Injuries of the Lumbar Spine and Coccyx.
Mercer G. Lynch, New Orleans, Causes of Hoarseness.
Malcolm B. Dockerty, Rochester, Minn., Modern Concepts Regarding Carcinoma of the Uterine Cervix.
Malcolm R. Hill, Los Angeles, Precancerous Lesions Encountered in Routine Anorectal Examination.
Edward B. Neuhauser, Boston, Diagnosis and Treatment of Malignant Disease in Children.
George F. Lull, Chicago, What Do I Get for My AMA Dues?
Paul V. Woolley Jr., Detroit, Familiar Problem of "Fever of Unknown Origin."
Lt. Col. Gerald M. McConnell, Washington, D. C., Evaluation of Atomic Weapons Casualties.

he registration fee of $20 may be mailed to the assembly, P. O. ox 2445, San Antonio.

UERTO RICO

Medical Association Program.—The Medical Association of uerto Rico held its annual meeting December 12-16 at its eadquarters in Santurce, under the presidency of Dr. A. Oliveras-Guerra. Guests of honor included the following physiians: Alton Ochsner, New Orleans; Richard A. Kern, Philaelphia; Walter Freeman, Washington, D. C.; Tinsley R. Harson, Birmingham, Ala.; Henry G. Poncher, Chicago; Henry J. umen, Philadelphia; Meredith F. Campbell, New York; Andrew . Banyai, Milwaukee; W. Guernsey Frey, Forest Hills, N. Y.; Maurice B. Visscher, Minneapolis; Max P. Cowett, New York; Arthur D. Ecker, New York, and Joe V. Meigs, Boston.

GENERAL

Dr. Brown Wins Dana Medal.—Dr. Edward V. L. Brown of Chicago is the 1951 winner of the Leslie Dana Medal, a national ward given annually for outstanding achievement in preventing lindness. Dr. Brown, senior attending ophthalmologist at Presbyterian Hospital, was selected for recognition by the Associaon for Research in Ophthalmology after being recommended y the National Society for the Prevention of Blindness. The t. Louis Society for the Blind annually awards the medal stablished in 1925 by Mr. Leslie Dana of St. Louis. The medal was presented to Dr. Brown at a dinner in the Hotel Chase, St. Louis, December 7. Dr. Brown formerly was professor of ophthalmology at both the University of Chicago and the Uniersity of Illinois. He is a member of the board of the Illinois Society for the Prevention of Blindness.

Group Psychotherapy Meeting.—The annual conference of the American Group Psychotherapy Association, formerly the American Group Therapy Association, will be held January 4-5 at the Hotel New Yorker in New York under the presidency of Dr. Lewis H. Loeser, Newark, N. J. In addition to papers to be presented, there will be panel discussions Friday on applications of group psychotherapy to prophylaxis, guidance and education; group psychotherapy in private practice, and group psychotherapy in mental hospitals and in child guidance, respectively. At the luncheon meeting on Saturday speakers will be Mrs. Clara Savage Littledale, editor, *Parents Magazine*, New York; Dr. Howard W. Potter, professor of psychiatry, State University of New York College of Medicine, and Dr. Lawson G. Lowrey, associate psychiatrist, Vanderbilt Clinic, Presbyterian Hospital, New York.

International Research Center for Chemical Microbiology.—This center was recently opened in Rome under the direction of Prof. E. B. Chain, F.R.S. It is attached to the Istituto Superiore di Sanità, the chief center for medical research and drug control of the Italian Government. A symposium on bacterial growth and its inhibition was held June 25-30 on this occasion, with the participation of some 20 scientists. The symposium was sponsored jointly by the Istituto Superiore de Sanità, the Council for the Coordination of International Congresses of Medical Sciences, and the World Health Organization. The center, which is recognized by WHO as an international center, will provide international research and training facilities in antibiotics. Its new laboratories contain large-scale pilot plant facilities for the production in substantial amounts of substances of microbiological origin and biochemical interest for research purposes.

Pathology Registry of Nutritional Diseases.—A registry of pathology of nutritional diseases has been established as a unit of the American Registry of Pathology of the Armed Forces Institute of Pathology in Washington, D. C., under the auspices of the Committee on Pathology of the National Research Council. The purpose of the registry is to provide for the accumulation and maintenance of pathologic materials and case records related to nutritional diseases. The registry will provide consultation service in the field of nutritional pathology and prepare teaching material for loan to qualified students and institutions. The cooperation of all individuals and institutions is invited. The registry has been authorized to receive any documented material sent by physicians, hospitals, laboratories, or other reliable sources. Further information may be secured from Dr. Herbert Pollack, 70 East 77th St., New York, or the Registry for Nutritional Pathology, Armed Forces Institute of Pathology, Washington, D. C.

Congress on Obstetrics and Gynecology.—The Fifth American Congress on Obstetrics and Gynecology will be held in Cincinnati March 31 through April 4 at the Netherland Plaza Hotel, sponsored by the American Committee on Maternal Welfare. More than 100 obstetricians and/or gynecologists are expected to take part in the program. In addition there will be 20 participants in the two public health meetings and more in the nursing section. Arrangements have been made for submission of written questions, either by mail or at the congress. The medical section program is headed by Dr. Woodard D. Beacham, New Orleans, in cooperation with the general program chairman, Dr. Nicholson J. Eastman, Baltimore. Chairman of the public health section is Dr. Herman N. Bundesen, Chicago. Congress registration fees are $5 for members and $10 for nonmembers. Information can be obtained by writing to Mr. Donald F. Richardson, Executive Secretary, American Committee on Maternal Welfare, 116 South Michigan, Chicago 3.

Postgraduate Course in Anesthesiology.—The New England Society of Anesthesiologists has arranged six postgraduate lectures in anesthesiology. The mornings will be devoted to visits to Boston hospitals, followed by roundtable luncheon discussions at the Massachusetts General Hospital at 12:30 p. m. Afternoon lectures will be held in the Bigelow Auditorium of Massachusetts General Hospital at 2 p. m. Fee for the course is $5. Residents and medical students will be admitted without fee. The lectures are as follows:

January 5, Physiology of the Cardiovascular System and Its Relationship to Anesthesia, moderators: Dr. William S. Derrick, Boston, and Dr. John Abajian, Burlington, Vt., Discussion of Cardiac Surgery.
February 2, Physiology of the Respiratory System and Its Relationship to Anesthesia, moderators: Dr. William Martin, Worcester, and Dr. Ruth E. Anderson, Norwich, Conn., Discussion of Pulmonary Surgery.
March 1, Physiology of the Central Nervous System and Its Relationship to Anesthesia, moderators: Dr. Julia G. Arrowood, Boston, and Dr. John R. Lincoln, Portland, Maine. Discussion of Neurosurgery.
April 5, Physiology of the Metabolic System and Its Relationship to Anesthesia—including a discussion of kidney and adrenal surgery, moderators: Dr. Benjamin E. Etsten, Boston, and Dr. M. Gene Black, Holyoke, Mass.
May 3, Gynecology and Obstetrics and Their Relationship to Anesthetic Agents, moderators: Dr. Elihu Saklad, Providence, R. I., and Dr. Richard H. Barrett, Hanover, N. H.

For information address M. Gene Black, M.D., Chairman, Committee on Post Graduate Education, 575 Beech St., Holyoke, Mass.

DEATHS

Aycock, William Lloyd ⊕ Boston; born Feb. 25, 1889; University of Louisville (Ky.) Medical Department, 1914; associate professor of preventive medicine and hygiene at Harvard Medical School; formerly on the faculty of Harvard Medical School, Courses for Graduates; for many years in charge of the laboratories and field investigations of the Harvard Infantile Paralysis Commission; on the faculty of the Harvard School of Public Health; at one time professor of tropical medicine at the University of Vermont College of Medicine in Burlington, where he was from 1919 until 1931 director of the research laboratory of the Vermont State Board of Health; instructor in bacteriology at the New York Post-Graduate Medical School and Hospital in New York from 1915 to 1919; during World War I served as officer in charge of a base hospital laboratory and as epidemiologist for the American Expeditionary Forces; member of the Association for the Study of Internal Secretions, American Public Health Association, and the Society of American Bacteriologists; past president of the American Epidemiological Society; died in Boston City Hospital October 24, aged 62, of subarachnoid hemorrhage.

Gibson, Edward Thomas ⊕ Kansas City, Mo.; born in Kansas City, Kan., Jan. 17, 1881; University of Kansas School of Medicine, Kansas City, 1912; professor of psychiatry and neurology at his alma mater, where he had been chairman of the department from 1929 to 1947; from 1914 to 1916 taught in the depart of neuropathology and psychiatry at Harvard Medical School in Boston and was assistant physician at Boston Psychopathic Hospital; specialist certified by the American Board of Psychiatry and Neurology; an Associate Fellow of the American Medical Association; one of the founders of the Mental Hygiene Society in Kansas City; member of the American Psychiatric Association, Central Neuropsychiatric Association, Kansas City Academy of Medicine, and Kansas City Southwest Clinical Society; affiliated with Mercy Hospital, of which he had been staff president, St. Luke's, Research, and Neurological hospitals in Kansas City, Mo., and the University of Kansas Medical Center in Kansas City, Kan.; from 1916 to 1920 clinical director and pathologist at Connecticut State Hospital in Middletown; consultant in psychiatry for the U. S. Public Health Service; died October 18, aged 70.

Carter, Harold Robert ⊕ Captain, U. S. Army, retired, Denver, born in Battle Creek, Mich., April 11, 1907; College of Medical Evangelists, Los Angeles, 1932; entered the medical corps of the U. S. Army as a first lieutenant in August, 1937, and retired in October, 1942; certified by the National Board of Medical Examiners; specialist certified by the American Board of Psychiatry and Neurology; member of the Central Neuropsychiatric Association, American Psychosomatic Society, American Psychiatric Association, and American Academy of Neurology; fellow of the American College of Physicians; assistant professor of neurology (medicine) at the University of Colorado School of Medicine; affiliated with Denver Orphanage, National Jewish, Presbyterian, St. Luke's, Colorado General, Denver General, and Children's hospitals and Mount Airy Sanitarium; killed in an automobile accident October 28, aged 44.

Milkman, Louis Arthur ⊕ Scranton, Pa.; born in 1895; Temple University School of Medicine, Philadelphia, 1919; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; fellow of the American College of Physicians; past president of the Pennsylvania Radiological Society and the Lackawanna County Medical Society; at one time on the faculty of St. Thomas College, now known as the University of Scranton; served during World War I; impartial physician, occupational diseases, Pennsylvania State Department of Labor and Industry, Workmen's Compensation Board; roentgenologist for the Pennsylvania Tuberculosis Clinic; affiliated with Carbondale (Pa.) General Hospital, Clarks Summit (Pa.) State Hospital, West Side Hospital, and Mercy Hospital, where he died October 25, aged 56, of myocardial infarction.

Acker, William F., Monroe, Mich.; Detroit College of Medicine, 1901; member of the American Medical Association; served during World War I; for many years county physician; formerly city physician; served as chief-of-staff at Mercy Hospital; died in the University Hospital, Ann Arbor, November 9, aged 72 of bronchopneumonia.

Asper, Guy Philip, Chambersburg, Pa.; University of Maryland School of Medicine, Baltimore, 1903; formerly associated with the U. S. Public Health Service Reserve; served during World War I; for several years on the staff of the Veterans Administration Facility in Castle Point, N. Y.; died recently, aged 71, of arteriosclerotic heart disease.

Bagnulo, Edmund Gillis, Pittsfield, Mass.; Tufts College Medical School, Boston, 1935; plant physician at General Electri Company; member of the American Medical Association; affiliated with St. Luke's Hospital and Hillcrest Hospital, wher he died October 23, aged 42, of carcinoma of the colon.

Blake, James ⊕ Hopkins, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; an Associat Fellow of the American Medical Association; served on th staffs of St. Mary's, Eitel, and Maternity hospitals in Minneapolis; died October 28, aged 79, of arteriosclerotic hear disease.

Bowman, Dora Emma, La Grange, Ill.; College of Physician and Surgeons, Medical Department of Kansas City University Kansas City, Kan., 1901; died in Iola, Kan., August 30, aged 82, of injuries received in an automobile accident.

Broadbelt, Leedom Richard, Havertown, Pa.; Jefferson Medical College of Philadelphia, 1906; member of the America Medical Association; on the staff of Delaware County Hospita in Drexel Hill October 13, aged 67.

Burger, Harry Ernest, Beloit, Wis.; Northwestern Universit Medical School, Chicago, 1907; member of the American Medcal Association; served during World War I; died July 27, age 67, of coronary infarct and carcinoma of the hepatic colon wit metastases to the lungs.

Clark, Perry Jacob, Powell, Wyo.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; served o the staff of Memorial Hospital; died October 10, aged 91, o arteriosclerosis.

Cook, Orrin Simeon ⊕ Sacramento, Calif.; University of Calfornia Medical School, San Francisco, 1917; specialist certifie by the American Board of Radiology; member of the America Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; served during World War II; for 25 years chief radiologist at Mercy Hospital, where he died October 24, aged 59, of carcinoma of the stomach with metastasis.

Corson, Filbert Richard ⊕ Atlantic City, N. J.; Medico-Chirurgical College of Philadelphia, 1913; served during World Wa I; died in Beesleys Point, October 13, aged 61, of cerebral hemorrhage and coronary occlusion.

Crist, Damon Ambrose, Dayton, Ohio; Ohio State University College of Medicine, Columbus, 1917; member of the American Medical Association; died October 7, aged 62, of Banti's disease.

Crocker, Elvis Wayne, Calhoun City, Miss.; University of Tennessee College of Medicine, Memphis, 1940; member of the American Medical Association; served during World War II; killed September 30, aged 42, in an automobile accident.

Cruzen, John Lewis, Barnes City, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1899; member of the American Medical Association; served during World War I; died September 16, aged 75, of carcinoma of the gallbladder and liver.

⊕ Indicates Fellow of the American Medical Association.

DeLong, Charles Alanson, Gary, Ind.; Rush Medical College, Chicago, 1905; member of the American Medical Association; on the staffs of Mercy Hospital and Methodist Hospital, where he died October 23, aged 77, of nephrosclerosis and uremia.

Dickey, Robert Randolph, Minneapolis; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1909; died October 28, aged 68, of cerebral hemorrhage due to hypertension.

Dowd, James Henry, Buffalo; Niagara University Medical Department, Buffalo, 1890; member of the American Medical Association; died October 29, aged 86, of arteriosclerosis.

Dowdy, Thomas Winfield ⊕ Oklahoma City; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1912; at one time practiced in Wilson and was past president of the Carter County Medical Society; affiliated with Mercy and Polyclinic hospitals; died in Wesley Hospital October 10, aged 62, of gastrointestinal hemorrhage, peptic ulcer and arteriosclerosis.

Driver, Wilson Eliot, Norfolk, Va.; University of Maryland School of Medicine, Baltimore, 1893; fellow of the American College of Surgeons; member of the staff of the Hospital of St. Vincent de Paul and Leigh Memorial Hospital; one of the founders of the Norfolk General Hospital; died October 14, aged 81, of coronary sclerosis.

Duckering, Florence West, St. Petersburg, Fla.; Tufts College Medical School, Boston, 1901; member of the American Medical Association; fellow of the American College of Surgeons; formerly practiced in Boston, where she was consulting surgeon to the New England Hospital for Women and Children; died in Peterboro, N. H., October 25, aged 81, of abdominal carcinomatosis.

Forcey, Charles Budd ⊕ Sewickley, Pa.; Jefferson Medical College of Philadelphia, 1910; in 1929 member of the House of Delegates of the American Medical Association; died in Miller Hospital, St. Paul, Minn., October 26, aged 65.

Galbraith, Alexander ⊕ Palo Alto, Calif.; Rush Medical College, Chicago, 1899; an Associate Fellow of the American Medical Association; member of the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; served on the staff of the Samuel Merritt Hospital in Oakland; was cited by President Truman for his work with the Selective Service system during World War II; died in Oakland October 13, aged 80.

Gerson, Benjamin Norton, St. Louis; National University of Arts and Sciences Medical Department, St. Louis, 1917; died October 17, aged 68, of hypertension and heart disease.

Gill, John Richard, Lovelock, Nev.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1900; member of the American Medical Association; served as mayor and as city and county health officer; veteran of the Spanish-American War; formerly associated with the Indian Service; died in Pershing County General Hospital, October 13, aged 77, of heart failure.

Goldman, Louis Charles ⊕ Ventnor, N. J.; Jefferson Medical College of Philadelphia, 1909; died in Atlantic City (N. J.) Hospital October 22, aged 65, of brain tumor.

Graham, Thomas Everett, St. Louis; Barnes Medical College, St. Louis, 1904; died in Missouri Baptist Hospital October 13, aged 74, of heart disease.

Gray, Richard Berchmans, Rensselaer, N. Y.; Albany (N. Y.) Medical College, 1910; served as health officer; died October 27, aged 63, of a skull fracture received in an automobile accident.

Grove, Robert Kellogg, Buffalo; Cornell University Medical College, New York, 1899; affiliated with Mercy and Charity Eye, Ear, and Throat Hospital of Erie County; died October 30, aged 76, of cerebral hemorrhage.

Growney, George Moore Jr. ⊕ Rochester, N. Y.; University of Buffalo School of Medicine, 1929; served during World War I; on the staff of St. Mary's Hospital; died in Elmira September 29, aged 51, of coronary occlusion.

Halderman, Charles Austin, Tipp City, Ohio; Ohio State University College of Medicine, Columbus, 1910; member of the American Medical Association; served as county health commissioner; for many years member of the county board of health; affiliated with Good Samaritan Hospital and the Miami Valley Hospital in Dayton, where he died October 23, aged 73.

Harney, Earl Lafayette ⊕ St. Petersburg, Fla.; Starling-Ohio Medical College, Columbus, 1911; member of the Ohio State Medical Association; died September 27, aged 65, of chronic myocarditis.

Hartzell, Thomas Bradford, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1894; held a D.D.S. degree; member of the American Medical Association; past president of the American Dental Association; formerly on the faculty of his alma mater and the graduate school; affiliated with Northwestern Hospital; member of the medical section of the National Research Council; died in Jennings Memorial Hospital in Detroit August 26, aged 85, of coronary thrombosis.

Haschec, Walter ⊕ Newark, N. J.; Long Island College of Medicine, Brooklyn, 1937; died September 19, aged 41, of portal cirrhosis.

Hays, Hardie Rogers, Jackson, Miss.; Memphis (Tenn.) Hospital Medical College, 1906; member of the American Medical Association; served during World War I; formerly associated with the U S. Public Health Service; for many years member of the county health department; director of the bureau of communicable diseases for the state board of health from 1926 to 1928; on the staff of the Baptist Hospital; died October 22, aged 69.

Heaton, Elbert Ellsworth, Centerville, Iowa; College of Physicians and Surgeons, Keokuk, 1896; died September 4, aged 79, of diabetes mellitus.

Herman, Howard Hunter, Waynesville, Ohio; Cleveland University of Medicine and Surgery, 1897; fellow of the American College of Surgeons; past president of the Montgomery County Medical Society; for many years on the staff of Miami Valley Hospital in Dayton, where he died October 21, aged 79.

Hertzog, Lucy Stone ⊕ Chardon, Ohio; Homeopathic Hospital College, Cleveland, 1891; affiliated with Huron Road Hospital in Cleveland, where he died August 12, aged 81, of cerebral hemorrhage.

Higgins, Clarence Bertrand, South Easton, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1918; served on the staff of Harley Private Hospital in Boston; member of the American Medical Association; died September 20, aged 63.

Hilton, George Libby, Nashua, N. H.; College of Physicians and Surgeons, Baltimore, 1902; practiced in Bangor, where he served as city physician and as a member of the police commission and the board of health; died October 9, aged 75.

Hogan, John Vincent, Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1910; member of the American Medical Association; affiliated with Memorial Hospital and Mount St. Mary's Hospital, where he died October 20, aged 63, of cerebral thrombosis and cirrhosis of the liver.

Honeycutt, Emery Highsmith, Miami, Fla.; Medical College of Virginia, Richmond, 1950; intern, Jackson Memorial Hospital; died in Clinton, N. C., July 13, aged 27, of carcinoma of the abdomen.

Hyde, Ximie Richard, Fort Worth, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1915; member of the American Medical Association; specialist certified by the American Board of Radiology; formerly vice-president of the State Medical Association of Texas; past president and secretary of the Tarrant County Medical Society; member of the Radiological Society of North America and the American College of Radiology; affiliated with City-County Hospital; died recently, aged 58.

Isar, Jakob, Kew Gardens, L. I., N. Y.; Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, Germany, 1915; died recently, aged 61, of arteriosclerotic heart disease.

Keene, Jacob Jay, Brooklyn; Long Island College Hospital, Brooklyn, 1903; died in Adelphi Hospital July 18, aged 80, of congestive heart failure.

Kohlhas, John Joseph ⊕ Buffalo; University of Buffalo School of Medicine, 1912; veteran of the Spanish-American War and World War I; died October 31, aged 67, of lymphosarcoma of the rectum.

Kress, William Jewett ⊕ Spokane, Wash.; Missouri Medical College, St. Louis, 1894; an Associate Fellow of the American Medical Association; died in the Santa Monica (Calif.) Hospital October 28, aged 78.

Law, Stanley Guy ⊕ Minneapolis; Rush Medical College, Chicago, 1930; member of the American Psychiatric Association and Industrial Medical Association; served during World War II; died near Siren, Wis., September 3, aged 49, of coronary thrombosis.

Lawrence, Watson Angus, Hartsdale, N. Y.; McGill University Faculty of Medicine, Montreal, Canada, 1909; served during World War I; for many years director of obstetrics at St. Agnes Hospital in White Plains; died November 5, aged 73, of heart disease and cirrhosis of the liver.

Lof, Anders Johan Oscar, Denver; University of Denver Medical Department, 1896; member of the American Medical Association; died October 5, aged 84, of hypostatic pneumonia, arteriosclerosis, and fracture of the femur.

Lynch, George David, DeWitt, N. Y.; Syracuse University College of Medicine, 1904; member of the American Medical Association; served as medical examiner for the New York State Department of Labor Compensation Bureau; formerly on the faculty of his alma mater; died October 13, aged 71.

McCoy, Earl Monroe, Central Islip, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1918; member of the American Medical Association; past president of the Suffolk County Medical Society and vice-president of the Long Island Associated Physicians; served during World War I; affiliated with Southside Hospital, where he died November 9, aged 56, of injuries received in an automobile accident.

McCoy, Raymond Howard, Tecumseh, Neb.; University of Nebraska College of Medicine, Omaha, 1948; member of the American Medical Association; served during World War II; died July 3, aged 26, of coronary thrombosis and poliomyelitis.

McNair, John Clement, Handsboro, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1898; at one time county health officer; served during World War I; superintendent of the Natchez (Miss.) Charity Hospital from 1924 to 1928; died October 16, aged 79, of bronchiectasis and cardiovascular disease.

Macy, Otto E., Riverton, Wyo.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; died September 27, aged 80, of coronary thrombosis.

Maguire, Thomas Joseph, Medford, Mass.; Harvard Medical School, Boston, 1907; member of the American Medical Association; school physician and medical inspector for the board of health; on the staff of Lawrence Memorial Hospital; died October 10, aged 73, of uremia.

Marbel, Myer M. ⊕ Chicago; Chicago College of Medicine and Surgery, 1917; on the staff of the American Hospital, where he died November 19, aged 65, of ileus.

Markowitz, Irwin ⊕ Jersey City, N. J.; University and Bellevue Hospital Medical College, New York, 1915; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; served overseas during World War I; on the staff of Christ Hospital and Margaret Hague Maternity Hospital; died October 20, aged 57.

Marshall, William R. ⊕ Aspinwall, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1922; served during World War I; school doctor; formerly on the faculty of the University of Pittsburgh School of Medicine in Pittsburgh, where he was affiliated with Mercy Hospital; died recently in Dunnville, Ont., Canada, aged 54, in a plane crash.

Mitchell, James Creighton, Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1890; member of the American Medical Association; served during World War I; died October 25, aged 87, of arteriosclerosis.

Molyneaux, Silas David ⊕ Binghamton, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; fellow of the American College of Surgeons; served during World War I; affiliated with Our Lady of Lourdes Memorial Hospital and Binghamton City Hospital, where he died October 14, aged 72, of myocardial infarction.

Moore, Homer Jackson ⊕ Surgeon, Lieutenant Commander, U. S. Navy, retired, Opa-Locka, Fla.; University of Texas School of Medicine, Galveston, 1941; served during World War II; retired in May, 1949; on the staff of North Dade Hospital; died in Jackson Memorial Hospital, Miami, September 28, aged 40, of peritonitis, hemorrhages, and pancreatic necrosis.

Nelson, Henry Walker ⊕ Ogden, Utah; Rush Medical College, Chicago, 1914; fellow of the American College of Surgeons; past president of the Weber County Medical Society; served during World War I; affiliated with Thomas D. Dee Memorial Hospital and St. Benedict's Hospital; died October 15, aged 69, of arteriosclerosis.

Nixon, Jesse Elsworth, Portland, Ind.; Medical College of Indiana, Indianapolis, 1904; member of the American Medical Association; served as county health officer; died in Jay County Hospital September 21, aged 76, of cerebral hemorrhage.

Peterson, Carl Adrian Rudolf ⊕ New York; Tufts College Medical School, Boston, 1920; on the staffs of the Columbus and St. Clare's hospitals; died October 28, aged 55.

Pillsbury, Edward Andrew ⊕ Frankenmuth, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; veteran of the Spanish-American War; on the associate staffs of St. Luke's, St. Mary's, and Saginaw General hospitals; charter member of the Frankenmuth State Hospital, of which he was a director; died October 9, aged 74.

Seyfarth, Clarence Alexander, Los Angeles; Northwestern University Medical School, Chicago, 1906; died in Methodist Hospital October 21, aged 70, of carcinoma of the liver.

Short, Nathan Green, Chicago; the Hahnemann Medical College and Hospital, Chicago, 1906; for many years a staff member of the city board of health; died in St. Luke's Hospital October 26, aged 76, of injuries received in a fall.

Wade, John Christopher, Oconto, Neb.; Sioux City (Iowa) College of Medicine, 1897; served during World War I; died in Sioux City, Iowa, September 27, aged 81.

Winslow, Benjamin Sabert, New Bedford, Mass. (licensed in Massachusetts in 1902); member of the American Medical Association; on the courtesy staff of St. Luke's Hospital, where he died November 2, aged 74, of coronary occlusion.

Yowell, Joseph William, Duvall, Wash.; University of Louisville (Ky.) School of Medicine, 1929; member of the American Medical Association; died September 21, aged 54, of coronary occlusion.

DIED WHILE IN MILITARY SERVICE

Dillon, Henry Joseph, Denver; University of Colorado School of Medicine, Denver, 1937; member of the American Medical Association; served during World War II; lieutenant colonel in the medical reserve corps of the U. S. Army, served with the 8,040th Army Unit in Nara, Japan, where he died August 14, aged 49, of a hemorrhage following an accident.

FOREIGN LETTERS

DENMARK

The Hospital Ship "Jutlandia."—With its return to Europe carrying wounded and convalescent soldiers, "Jutlandia" has completed an Odyssey that is Denmark's first official contribution to the United Nations. In his report to the Danish National Red Cross Society, Dr. Hans Tønnesen emphasizes the spirit of teamwork shown by his staff. Surgeons, physicians, psychiatrists, and neurologists set an example in collective action. By the end of June, 1951, some 1,200 casualties had been treated by the hospital ship staff, which had a lighter task than it had expected. It was from time to time free to extend the hospitality of the ship's services to colleagues from hospitals ashore and from other hospital ships, and these meetings provided an opportunity for discussing general principles of treatment and specific cases. Visits from the Americans were particularly important, since it was necessary to fit "Jutlandia" into an organization working smoothly with the fighting line at one end and the hospitals in Tokyo, Yokosuka, and the homeland at the other.

Dr. Tønnesen stresses the importance he has learned to attach o disciplined uniformity in place of undisciplined individualism. It had been feared at the outset that it might be difficult to get physicians from different fields to work harmoniously, but the staff succeeded in achieving a spirit of cooperation. According o the original plan, "Jutlandia" was to receive non-American United Nations contingents from the British Dominions and other countries, but most of the wounded men were Americans. The language differences gave some trouble, particularly Turkish and Greek. Dr. Tønnesen attributes much of the high morale of his patients to the fact that they were cared for by nurses nstead of by orderlies. Though the nurses had to live four to each bedroom, they managed to maintain a cheerful spirit at all imes. They worked for 8 to 10 hours a day in artificial light and a strenuous atmosphere. From time to time they took excursions ashore, from which they returned with flowers for their patients. At times, when the requirements of the wounded were not pressing, Korean adults and children were given medical reatment on board the ship, which flew the flags of Denmark, of the Red Cross, and of the United Nations.

Cure for Adiposity by Taxation.—At the central hospital in Svendborg, Dr. Bent Krarup and Dr. C. J. Schwensen have undertaken an analytical study of the weight of patients treated n this hospital in 1948 and 1949. After the elimination of 569 patients under the age of 15 and 147 other patients, they were eft with 2,429 patients over the age of 15. They were classified according to their ages and weights, and the "normal" weights at different ages were based on the figures of a life insurance company. These life insurance "normals" could not be regarded as the ideal, particularly for elderly persons, being based on average values. So the patients were allowed a 10% margin above these normals before being included among the overweight cases. According to this standard, 310 (12.8%) of the 2,429 patients were overweight. About two-thirds of these patients were over the age of 50. A study of 242 overweight patients showed that on the average each of them had spent nearly five days more in a hospital than the average for all the hospital patients. These 242 patients had been admitted to the hospital for reasons directly or indirectly, partly or entirely, concerned with their obesity. As many as 85 suffered from arthroses, and 141 from some form of heart disease. After discussing the association of adiposity with numerous other morbid conditions and the economic burden it imposes on the community, the authors of this study suggest that it is largely due to the carelessness and thoughtlessness of overweight persons. These persons, they said, should defray some of its cost through taxation on adiposity; those who were overweight would have to pay an extra premium for their insurance.

A Pernicious Anemia Census.—In 1939, Kirk and Geert-Jørgensen attempted a pernicious anemia census in Denmark, whose population is 4 million persons. They calculated that there were about 2,000 patients over the age of 65 in the country. Among 2,079 persons over the age of 60 whose blood they examined, there were 19 cases of pernicious anemia. In 1934 Meulengracht estimated that the number of such cases in Denmark was between 1,000 and 2,000. Dr. Johannes Mosbech has now taken up the same problem with the help of the U. S. Public Health Service. A member of the Institute for Genetics and Biology, University of Copenhagen, Dr. Mosbech has issued a questionnaire on the subject of pernicious anemia to 94 physicians in the county of Odense. All but two answered, giving the number of their pernicious anemia patients under treatment in December, 1950.

The 175 cases thus reported (105 women and 70 men) may be taken to include all the known cases in the county, for these physicians are able to keep in touch with all their patients, because their signatures are necessary for the renewal of prescriptions for pernicious anemia remedies. About one-third of the 175 cases had been diagnosed while the patients were in the hospital, and in 169 cases data were available with regard to the patient's age when the disease was first detected. It was found that the disease began most frequently among women between the ages of 50 and 60 and among men between the ages of 40 and 70. No seasonal variation could be discovered with regard to the time of the year at which the disease was diagnosed.

As far as the county of Odense is concerned, the pernicious anemia rate is put at about 0.1%. This rate increases with age: between the ages of 40 and 60 it is about 0.2%, and between the ages of 60 and 80 it is about 0.3%. If the findings for Odense are applied to the whole of Denmark, there would seem to be, at the present time, about 4,000 patients receiving treatment for pernicious anemia. In Odense alone about 15 new cases are diagnosed every year—a new case for every 10,000 women and for every 15,000 men, and in the whole of Denmark about 300 new cases are diagnosed yearly. Dr. Mosbech, whose study is published in *Ugeskrift for Laeger* for Sept. 27, 1951, concluded: "The present study has shown that in Denmark during the 25 years since treatment was introduced, there must be 4,000 patients who suffer from pernicious anemia and who benefit from the therapeutic advance made by Minot and Murphy."

TURKEY

Drug Addiction in Turkey.—Before World War I drug addiction was rarely encountered. With the influx of Russian refugees in 1919, drug addiction, mostly to cocaine, appeared and spread. During the occupation, 1918-1923, it was difficult to curb illicit traffic in narcotics, and it became necessary to set aside a pavilion for the treatment of drug addicts at the Istanbul-Bakirköy mental hospital.

According to a publication by Prof. Fahreddin Kerim Gökay, formerly of Istanbul University Department of Psychiatry, for many years chief of Bakirköy's 3,000-bed mental hospital, and currently governor and mayor of Istanbul, 1,534 patients, of whom 1,442 were men and 92 were women, were treated for drug addiction between 1940 and 1949. The ages of these patients were 15 to 19 in 7% of the cases, 20 to 34 in 56%, and 35 to 50 in 37%. Seventy-one per cent were addicted to heroin, 7% to hashish, 4% to opium, and 1% to morphine; the remaining 17% were addicted to various other kinds of narcotics. Of these patients 52% were unemployed or transient trades persons, 16% were workmen, 11% technicians, 7% car and truck drivers, 5% prostitutes, 3.5% housewives, 3% civil servants, 1.5% entertainers, and 1% students. Of all these, 32% were chronic drug addicts and 68% had taken drugs regularly for only a short time.

The control of narcotics is the concern jointly of the Ministry of Health and Social Assistance and the Ministry of Agriculture. The cultivation of opium and Cannabis indica is re-

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The items in these letters are contributed by regular correspondents in the various foreign countries.

stricted, and the manufacture of heroin and cocaine is prohibited by law. The government controls the sale and export of raw opium. Smuggled narcotics are confiscated, and high fines and severe prison sentences await the offenders. Confiscated narcotics are immediately sealed and forwarded to the Ministry of Health for destruction (by incineration) under the supervision of a special body. Depots of drugs and narcotics, pharmacies, and drug stores are required by law to keep a book of accounts of the narcotics dispensed. The accounts are inspected by officers from the Ministry of Health at intervals. The maximum amount of drugs and narcotics a physician may prescribe is fixed; the daily dose prescribed is not to surpass half the amount of the maximum dose of any drug, and it may not be prescribed for more than five days, with the exception of codeine and ethylmorphine hydrochloride, for which pharmacists need not account. Proprietors of commercial pharmaceutic houses selling narcotics to persons other than pharmacy proprietors, and pharmacists guilty of dispensing narcotics without prescription, or who are guilty of faulty bookkeeping, are fined from £100 to £1,000 and sentenced to prison. Physicians, nurses, sanitary inspectors, midwives, or members of allied professions found guilty of violating the narcotics law are fined from £200 to £1,000 and sentenced to prison for two years; they are sentenced to five years in a penitentiary if death has occurred as a result of the violation. The licenses of those persons are temporarily, or permanently, withdrawn. The government is trying to control illicit production and traffic of narcotics by increasing its staff of officers and cooperating with international bodies for drug control.

Training School for Tuberculosis Nurses.—As a consequence of World War II, tuberculosis is now first in importance among public health problems in Turkey. The Ministry of Health and Social Assistance, in cooperation with the World Health Organization and the Turkish Anti-Tuberculosis Society, endeavors to train medical and health workers in modern antituberculosis methods. The first training school for tuberculosis nurses, with an enrolment of 30 students, was established in 1943, in temporary premises at the Istanbul Antituberculosis Society's 200-bed Istanbul-Erenköy Sanatorium. The training course was two years. As the Ministry of Health and Social Assistance had in recent years added 2,000 beds for tuberculous patients in its hospitals and sanatoriums, the need for more tuberculosis nurses became apparent. The new school building for the training of tuberculosis hospital and visiting nurses, with an enrolment of 100 students, was recently opened in ceremonies attended by the Minister of Health, Prof. Ekrem Hayri Üstündag, and Antituberculosis Association President Prof. Tevfik Saglam, Dr. Étienne Berthet, tuberculosis consultant of the WHO, and other prominent tuberculosis workers. The theoretical and practical course now takes three years; board, maintenance, and tuition are free; among the teaching staff are American and specialist nurses. The students study at the expense of either the Ministry of Health or the Antituberculosis Society and must work for a period of five years after termination of the course in the respective hospitals or institutions. After this period they must still continue in this branch of nursing.

ECUADOR

National Antimalarial Campaign in Ecuador.—As in other tropical countries, in Ecuador the incidence of malaria has been great. Moreover, malaria has been distributed solely through the lowlands: the coast, certain subtropical valleys, and to a lesser extent in the eastern zone, which forms part of the Amazon basin. The mountain zone, in which, owing to its favorable climate, the greater percentage of persons is found, has always been exempt from malaria, because the carrier mosquito, the Anopheles, can not adapt to the temperate climate of the mountains. However, the most important region, from an economic point of view, is the coast, where the majority of the exportable items and commodities are produced, such as rice, cacao, rubber, bananas, and balsa wood. In this region, according to mortality statistics, more than 10% of the deaths were caused by malaria. Thus, the number of those affected by the parasites must have been extremely large. More than 50% of the agricultural workers of the coast either were sick or had been sick with malaria, which reduced their output to such an extent that the national economy was affected.

These considerations led the National Congress to study a plan for a systematic campaign designed to eradicate malaria in Ecuador, and for this purpose it passed a law that was put into effect in 1949. This national campaign was directed by the eminent epidemiologist Dr. Juan Antonio Montalván, who had, a short time before, carried on specialized studies in the United States. The campaign was planned for completion in three years and its purpose was to destroy the infected mosquitoes and introduce control of the patients with malaria, so that, within tha period of time, the disease would be eradicated. The antimalaria campaign, which has proceeded according to plan, has consisted essentially of spraying with D. D. T., at six month intervals, al the houses and habitations in all malaria-infested places. In addition, the appropriate controls have been instituted over malaria patients. The first general spraying with D. D. T. took place at th end of 1949 and reached approximately 80% of the dwellings i malaria-infested places; that is, 32,000 urban houses and 71,50 rural houses, with a total of more than 25 million square meters which were sprayed with solutions and powders of D. D. T. an gamma benzene hexachloride ("gammexane") (this last insecticide in small proportion). This treatment reached 700,000 inhabitants in the cities and in the rural regions. The subsequen treatments with D. D. T. reached an even greater percentage o houses. The spraying with D. D. T., which in the first gener treatment had been carried out only to the height of 11 ft. o walls that were higher than that, was in subsequent treatment carried out completely, including the roofs and subfoundations In accordance with the original intention, the antimalarial campaign is drawing to an end; nevertheless, an extension will b necessary for some time to control any possible focus of infectio that may appear in the future.

The results of the campaign have been most interesting an effective. The relevant statistics disclose an abrupt diminutio in the incidence of malaria, beginning with the start of this campaign and a progressive diminution during the last two year showing a tendency to fall to zero. The greatest contrast is observed on comparing the statistics before 1949 with those fo lowing the first general treatment with D. D. T. Thus, f example, in investigations prior to treatment with D. D. T., was found that during the period of malarial transmission, that i from December to May, 22% of the samples, chosen at random contained plasmodia; while, in 18,300 samples, also chosen random but after the D. D. T. treatment, only 2.2% of parasit infection was found. In another investigation carried out at t Dispensario Infantil of Guayaquil, where the incidence malaria was great, after the treatment with D. D. T. it was foun that out of 2,778 blood samples, only 29 (1.04%) containe the malarial parasites. In the Luis Vernaza Hospital of Guayaquil, where the majority of the patients, not only from the city but also from most of the coast, are concentrated, a diminutio in the incidence of malaria was recorded amounting to approx mately 80%, and, in the supposed malaria patients who we being treated at that hospital, the reduction was 93%. Th diminution of morbidity due to malaria has been progressi during 1950 and 1951, and the directors of the campaign hop to be able to eradicate definitively this terrible disease, which ha prevented wider colonization of the fertile regions of the coas At the same time, the cost of the campaign has been relativel low, if it is compared with the cost incurred in similar operation in other countries. Treatment with D. D. T. has cost 0.10 sucre per square meter and 3.65 sucres per person (one dollar equa 15.15 sucres); this low cost is due to cheap labor and to the goo organization of the campaign.

Personal.—Dr. Teodoro Salguero was elected dean of th Faculty of Medicine of the Central University of Quito. D Salguero recently studied at the University of Michigan unde the auspices of the *Kellogg Foundation.*

CORRESPONDENCE

STUDENT AMERICAN MEDICAL ASSOCIATION

To the Editor:—Every doctor who takes a long-range view of American medicine should regard the formation of the Student American Medical Association with a sigh of relief. In the present floodtide of bureaucratic socialism, it can become one of the strongest sections of our dike against further governmental encroachments. It can also become an important medium for bringing the student into closer contact with the multitudinous problems he will encounter once he has entered into his own private practice.

On a national scale, this move has been long overdue. For too long a time, the medical student has been pushed straight from the classroom into the complicated maze of legal, financial, and ethical problems which confront the physician hanging out his shingle for the first time. By making the solutions to these problems part of his extracurricular education, we are helping the student to step into his practice as an oriented, well-adjusted person and as a genuine asset to his profession.

On a local level, I had anticipated this need as far back as 1938, when I sponsored the organization of the Student Medical Association at the College of Medical Evangelists in Los Angeles. For the past 13 years, this exceedingly active group has benefited socially and intellectually by its bimonthly meetings, which present the best speakers in a multitude of fields. Apart from earning of the latest advances in surgery, orthopedics, dermaology, and other fields, they learn how to invest their future profits for the greatest financial return, how to combat the dishonest patient, how to ethically and legally collect delinquent bills, how to play an important role in the combating of narcotic addiction, and how to manage many situations that will better enable the student to serve himself and his commmunity in the most advantageous manner.

Medicine has a tremendous variety of functions, of which he constant fight against socialized medicine is only a part. We believe in improvement of medical care and the furtherance of he art and science of medicine. It is therefore up to us to furnish hat connecting tie between organized medicine and the embryo physician to insure that he is familiar with medical life's general, over-all picture.

If it accomplishes nothing more, the S. A. M. A. will be exceedingly worth while in proving to the student that the American Medical Association is not an autocratic power—as he is too often led to believe—but rather a very democratic organization whose affairs are handled by elected representatives from their various districts. Its meetings are open and above board. All of its actions are intended to be for the best interests of the doctors whom it serves.

We should take it on ourselves to insure that members of this new organization have an opportunity to see for themselves what goes on in A. M. A. headquarters. They should know that each branch, each bureau, each officer has for its objective something for the advancement of the medical profession or the advancement of the American people's health.

It is never too soon to start educating the medical student in the American way of life. With the proper guidance, these students can and will make a significant contribution to their own best interests, as well as to that of the practicing physician.

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DEATH FOLLOWING CORTICOTROPIN (ACTH) THERAPY

To the Editor:—In the editorial "Postpartum Necrosis of the Pituitary" (*J. A. M. A.* 146:653 [June 16] 1951), the statement is made that the role of corticotropin and cortisone in the treatment of pituitary insufficiency has not been determined. I know of the death of a 43-year-old white woman with Sheehan's disease 24 hours after the injection of 25 mg. of corticotropin. It raises the question of whether the injection of corticotropin, stimulating a dangerously depleted adrenal gland, might not be sufficient to bring about complete adrenal exhaustion with adrenal crisis and death.

This patient, in whom signs of pituitary insufficiency had developed after the birth of twins, 10 years earlier, was admitted to the hospital with high fever, sore throat, nausea, and vomiting. She improved with penicillin and supportive therapy. On the third hospital day she was given 25 mg. of corticotropin. The eosinophil count fell from 125 per cubic millimeter to 95 per cubic millimeter in four hours. The following morning she was found dead in bed. Autopsy revealed marked atrophy of the adrenals, thyroid, ovaries, and uterus. The cut surface of the pituitary gland revealed a large amount of fibrous tissue replacement.

The presence of long-standing anterior pituitary and secondary adrenal hypofunction appears to be well established by the clinical and pathological findings. In addition, the factor of the septic sore throat in bringing about further adrenal exhaustion is to be noted. If similar cases are reported, the danger of the use of corticotropin should be pointed out.

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Lenox Hill Hospital
New York 22.

LOSS OF HAIR FOLLOWING PROPYLTHIOURACIL THERAPY

To the Editor:—At the instance of Dr. Morris Wilburne, I am submitting a statement on hair loss and pigmentation following the use of propylthiouracil. This occurred in a white man, 32, whose pretreatment basal metabolic rate was +51% and whose blood sugar curve showed diabetes mellitus with glycosuria (4+) in the fasting specimen. The height of the sugar curve one hour after administration of oral glucose was 600 mg. per 100 cc., with no return to the base line after three hours. He was underweight, the weight being 120 lb. and the height 68 in. The blood pressure was 130/80, the pulse rate varied from 96 to 133, and he had a bilateral nodular adenomatous goiter. He was given propylthiouracil, 100 mg. three times daily, in conjunction with strong iodine (Lugol's) solution, 4 minims (0.246 cc.) daily, and a diabetic regimen. Within two months, he noticed that his hair, beard, eyebrows, and lashes were rapidly falling out. One month later, his beard began to return, but it was noticed that, whereas the color had been a light brown, it was now white. At this time, the basal metabolic rate was +20%, the weight had increased to 134 lb., and the pulse rate was 96. He was sugar free. At this stage, the propylthiouracil was increased to 400 mg. daily, and the iodine solution to 8 minims (0.493 cc.). The fasting blood sugar was 122 mg. per 100 cc.

He had a first-stage (left lobe) thyroidectomy in May, five months after his first office treatment; the second stage resection of the right lobe was done two months later. During the period of hospitalization, and during other brief periods when the propylthiouracil was omitted, there was noted a temporary return of hair growth, but always the return was white.

M. L. B. Clarke, M.D.
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MISSPELLING OF NAME SCHEFFEY

To the Editor:—I wish to call your attention to the misspelling of my name as Chief of Service in Obstetrics and Gynecology at Jefferson Medical College Hospital, as noted on page 423 of The Journal, Sept. 29, 1951, relating to approved residencies.

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Professor of Obstetrics and Gynecology
Jefferson Medical College and Hospital
Philadelphia.

MEDICAL MOTION PICTURES

Activity for Schizophrenia: 16 mm., black and white, sound, showing *time 20 min. Produced in 1950* for the Department of Medicine and Surgery by and procurable on loan from Presentation Division, Veterans Administration, Washington 25, D. C.

This film describes dramatically the employment of corrective therapy in the treatment of schizophrenia. It describes in detail the recovery of one patient from the time of his admission to a psychiatric hospital until the time of his discharge. His suicidal tendencies are overcome, electric shock therapy is administered, and the corrective therapist, under the guidance of the chief of psychiatry and the chief of physical medicine, provides individual and eventually group activities, which lead to abandonment of the suicidal attempts and gradual resocialization. It is mentioned that "corrective therapy is one of the keys which unlocks the prison of the sick mind" and that "physical movement is often the only means of expression for the schizophrenic." It is stressed that faith in the therapist is important. Occupational therapy is added to the therapeutic regimen, the patient is finally transferred from a closed to an open ward, and he starts group games involving increasingly complex social situations. There is a brief reference to the psychotherapy by the psychiatrist which finally leads to better acceptance by the patient of his parents. There is a dramatic first meeting with his parents and increased activity in occupational therapy, manual arts therapy, and the library; finally, the patient, all smiles, wins a baseball game and receives the approbation of the psychiatrist.

Despite the fine acting, good photography, and sustained drama, this film is misleading because it presents such a distorted view of the importance of corrective therapy. Specialists in psychiatry and physical medicine, who should play the leading role in the treatment of such patients, and also trained physical therapists and occupational therapists will undoubtedly resent the secondary role assigned to them in the recovery of this patient. Corrective therapists are usually graduates of physical education, with very limited special training in psychiatry and physical medicine. Obviously the faith placed by this patient in the therapist should have been placed in the psychiatrists and the other physicians who administered the medical care. The film is good entertainment but does not present a well-balanced picture of proper therapy for the schizophrenic patient. The photography is excellent, the acting is of a high order, and the script is interesting from start to finish.

Curare: Intocostrin, *d*-Tubocurarine Chloride, Mecostrin: 16 mm., color, sound, showing time 25 minutes. Produced by Billy Burke Productions, Hollywood, for and procurable on loan from E. R. Squibb & Sons, 745 Fifth Ave., New York 22.

This report type film is designed to demonstrate some of the basic pharmacological principles associated with the action of curare and to present some examples of its clinical application in surgery. After a repetition of the Claude Bernard experiment on the frog, electromyography is used on a human in order to demonstrate the peripheral action of curare. There are numerous short views of various types of operations, including general surgery and obstetrics, in which curare is employed. The dangers inherent in the use of curarizing drugs are well presented, and the technic of adequate artificial respiration under positive pressure is illustrated. It is candidly and correctly stated that the potential danger in the use of curare is related to lack of understanding of its action rather than to the drug itself.

While this film was not intended as an encyclopedia, it is felt that more stress should be placed on the proper selection and detailed management of patients receiving curare, in order to avoid misuse of the drug and fatalities. Early in the film, during the time that important material is presented by the narrator, the showing of uncorrelated views is distracting.

The simplicity of the technic for the administration of curare, as presented in this film, may mislead the uninformed. Only trained anesthesiologists can safely interpret and evaluate the use of curare as demonstrated, since they have sufficient knowledge of correct anesthetic procedures and safeguards for the administration of this potent drug. The photography and narration are excellent.

Bronchiogenic Carcinoma: 16 mm., color, sound, showing time 20 *minutes. Produced* in 1951 for the Department of Medicine and Surgery and procurable on loan from Presentation Division, Veterans Administration, Washington 25, D. C.

The stated purpose of this film is "to acquaint general practitioners and medical students with bronchiogenic carcinoma." It discusses rather briefly the high incidence of the disease an the symptoms, diagnosis, and treatment. One case is carrie through the steps of diagnosis, surgical removal of the lung and postoperative care.

Inasmuch as the purpose of the film is to acquaint the genera practitioner and the medical student with the clinical pictur of the disease, much more time should be spent on this phas of the subject and perhaps less time on the surgical technic, phase that is more particularly of interest to the thoracic surgeon The presentation of the clinical and x-ray findings is very limited and is not sufficient to give the viewer a good idea of th various manifestations of the disease. The importance of bronchoscopy as a diagnostic measure is stressed, but no mention i made of the fact that results of bronchoscopic examination ar positive in only about 25% of cases. The differential diagnosi of the patient with "virus pneumonia" was omitted, and in th very brief mention of cytology, the cytologic examination of th sputum was not mentioned. The presentation of the operatio entails good surgical technic, and the producers avoided the mistake of spending too much time photographing the preparatio of the skin and the details of making the exposure. In this case however, they failed to do what seems essential, namely, to sho the location of the incision in the patient's body and to orien the viewer in relation to the patient's body. This film does no fulfill the expectations aroused by the knowledge of those responsible for its production. The color quality of the print submitted for review is not good, thus the various anatomica structures are difficult to identify.

Weight Reduction Through Diet: 16 mm., color, sound, showing tim 15 minutes. Sponsored by the National Dairy Council in cooperation wit Michigan State College. Produced by the Jam Handy Organizatio Detroit. Procurable on loan from the National Dairy Council, 111 Nort Canal St., Chicago 6.

This film documents a weight reduction study conducted a Michigan State College. It opens with a brief foreword by Frederick J. Stare, M.D., of Harvard University, on the proble of overweight and several scenes that illustrate reasons why a overweight person should and might want to reduce. The r mainder of the film is devoted to actual photographs of t persons who took part in the program and a description of h the study was conducted. Cases illustrated include a group college students whose meals were taken at a training table a a group of non-students who followed their plans at home.

The film is scientifically accurate. It emphasizes the imp tance of dieting only under the supervision of a physician a illustrates the point that a person can have attractive appetizi meals even though he is on a reducing diet. This film would of interest mainly to persons exhibiting some interest in dietin to dieticians and home economists, and to home economi classes in schools. The photography and narration are sati factory.

Tattooing with Optical Iridectomy in Conical Cornea: 16 mm., colo silent, showing time 15 minutes. Produced by and procurable on loan fro Arthur Alexander Knapp, M.D., 907 Fifth Ave., New York, N. Y.

This film begins with 139 ft. of titles which describe the mea of restoring vision in eyes with corneal scars and deformities th seriously obstruct vision. Surgical procedures, such as excisio of the anterior layers of clouded cornea and iridectomy place so as to utilize a comparatively clear portion of the cornea, a briefly described. There follows a case history of a patient wi keratoconus. The corneal epithelium is abraded, and the centr portion of the cornea, to within 3 to 4 mm. of the limbus, i treated with solution which results in dense black staining. A iridectomy done at the limbus above will serve as a pupil, wi only slight astigmatism. The surgical dressing consists of a lubr cating ointment and a snug bandage. This film is designed to illustrate one method of treating corneal abnormalities that obstruc vision in an otherwise healthy eye. Its application is rathe limited. It could be shown to ophthalmologists interested i the author's technic of corneal tattooing but is not recommende as a teaching film. The photography is satisfactory.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Internal Medicine, Chicago

88:419-552 (Oct.) 1951

Follow-Up Study of Therapy in 48 Culturally Proved Cases of Brucellosis: Streptomycin and Sulfadiazine, Aureomycin, and Chloramphenicol (Chloromycetin®). W. W. Spink, W. H. Hall and R. Magoffin.—p. 419.
Changes in Serum Complement During Course and Treatment of Glomerulonephritis. K. Lange, F. Graig, J. Oberman and others.—p. 433.
Comparison of Methods for Determining Sensitivity of Bacteria to Antibiotics in Vitro. G. G. Jackson and M. Finland.—p. 446.
Infection Due to Chromobacteria: Report of 11 Cases. R. P. Wheat, A. Zuckerman and L. A. Rantz.—p. 461.
Bacteremia Due to Gram-Negative Bacilli Other Than the Salmonella: Clinical and Therapeutic Study. B. A. Waisbren.—p. 467.
Treatment of Pneumococcic Meningitis with Penicillin Compared with Penicillin Plus Aureomycin: Studies Including Observations on Apparent Antagonism Between Penicillin and Aureomycin. M. H. Lepper and H. F. Dowling.—p. 489.
Primary Herpes Simplex Virus Infection of the Adult with Note on Relation of Herpes Simplex Virus to Recurrent Aphthous Stomatitis. E. D. Kilbourne and F. L. Horsfall Jr.—p. 495.
Studies in Mitral Stenosis: I. Correlation of Physiologic and Clinical Findings. L. B. Ellis, R. A. Bloomfield, G. K. Graham and others. —p. 515.
Id.: II. Correlation of Post-Mortem Findings with Clinical Course of Disease in 101 Cases. G. K. Graham, J. A. Taylor, L. B. Ellis and others.—p. 532.

'reatment of Brucellosis.—Spink and associates made follow-up udies on 48 patients with bacteriologically proved brucellosis ho were treated with (1) a combination of streptomycin and ılfadiazine, (2) aureomycin, or (3) chloramphenicol. Brucella bortus was the cause of illness in 44 of the 48 patients. Among 1 patients treated with streptomycin and sulfadiazine, there 'ere 11 who promptly recovered and remained well, although ne of these had transitory bacteremia after treatment. Five dditional patients had positive blood cultures after treatment, lthough two of this group had no complaint of ill-health. Five thers had residual complaints of ill-health. Of 22 patients receiv-ıg aureomycin, 14 recovered promptly without a relapse; 3 atients had a relapse, 1 with a positive blood culture, and 5 atients were still in ill-health. Of eight patients receiving chlo-ımphenicol, two recovered completely; one showed no im-rovement; the bacteremia persisted in one, and four had esiduals of ill-health. This series included several patients with evere complications, such as spondylitis, suppurative arthritis, ıdiculitis, and subacute bacterial endocarditis. In every instance ıese complications were brought under control as a result of eatment. While this indicates a definite advancement in the ıerapy of brucellosis, a significant number of patients relapsed r had residual complaints of ill-health. Therapeutic investiga-ons should be made with the combination of dihydrostrep-mycin and aureomycin.

reatment of Pneumococcic Meningitis: Antagonism of Peni-llin and Aureomycin.—Among 43 patients with pneumococ-c meningitis treated with massive parenteral doses of penicil-n, 13 (30%) died. Among 14 similar patients treated with aureo-ıycin in addition to the same dose of penicillin, 11 (79%) died. o assure random sampling, alternate patients were selected for eatment with penicillin alone and for treatment with penicillin nd aureomycin combined. There was no essential difference be-veen the two groups with respect to age, the number of organ-sms in the spinal fluid, mental status, portal of entry, pneumo-occic complications, the presence of other diseases, or the day on which therapy was started. It is concluded that the poor results with the penicillin-aureomycin combination were not due to the chance inclusion of more severely ill patients in this group, nor did toxicity to aureomycin seem to account for the results. Rather, the evidence indicates that penicillin and aureomycin are mutually antagonistic when employed together in the treatment of pneumococcic meningitis. It appears unwise to use combinations of penicillin and aureomycin, terramycin, or chloramphenicol in treatment of patients with pneumococcic meningitis, or in treatment of any patients, even those with milder infections, in which antagonism has been shown in vitro. Consistently good results have been obtained in the treatment of pneumococcic meningitis with doses of 1,000,000 units of penicillin at two-hour intervals without use of the intrathecal route. Since good results have been obtained by the use of aureomycin therapy alone in pneumococcic meningitis, further studies should be made on the efficacy of aureomycin, terramycin, and chloramphenicol, without adjuvant penicillin.

Maine Medical Association Journal, Portland

42:279-300 (Sept.) 1951

President's Address. F. C. Small.—p. 279.
The College and the Medical School. E. C. Marriner.—p. 282.
Case Report of Ludwig's Angina with Complications. J. E. Poulin. —p. 284.
Bilateral Direct Hernias Repaired with Tantalum Mesh. R. J. F. Pomerleau.—p. 286.
Retro-Pubic Prostatectomy. W. A. Greenlaw and L. A. Guite.—p. 287.
Surgical Use of Steel Wire. R. L. Chasse.—p. 289.
Report and Observations on Full Thickness Skin Graft to Hand. E. J. Smith.—p. 290.
Acute Torsion of Omentum Without Hernia: Case Report. O. F. Pomerleau.—p. 292.

Neurology, Minneapolis

1:341-418 (Sept.-Oct.) 1951

Human Frontocorticopontine Tract: Functional Inconsequence of Its Surgical Interruption. R. Myers.—p. 341.
Phenomena and Correlates of Psychomotor Triad. W. G. Lennox. —p. 357.
Intracranial Neoplasm Associated with 14 to 6 Per Second Positive Spikes. W. A. Stephenson.—p. 372.
Anticonvulsant and Toxic Effects of Alpha-Phenyl-Butyryl Urea. M. J. Orloff, P. E. Feldman, C. H. Shaiova and C. C. Pfeiffer.—p. 377.
Extradural Hematoma of Posterior Fossa. R. C. Schneider, E. A. Kahn and E. C. Crosby.—p. 386.

Quarterly J. Studies Alcohol, New Haven, Conn.

12:167-354 (June) 1951

Inhalation of Ethyl Alcohol by Man: I. Industrial Hygiene and Medicolegal Aspects. II. Individuals Treated with Tetraethylthiuram Disulfide. D. Lester and L. A. Greenberg.—p. 167.
Failure of Oxygen, Oxygen-Carbon Dioxide, or Pyruvate to Alter Alcohol Metabolism. F. W. Kinard, W. M. McCord and J. C. Aull Jr.—p. 179.
*Psychiatric Implications of Treatment of Alcoholism with Tetraethylthiuram Disulfide: Preliminary Report. B. H. Gottesfeld, L. M. Lasser, E. J. Conway and N. M. Mann.—p. 184.
Psychotic Phenomena Provoked by Tetraethylthiuram Disulfide. O. Martensen-Larsen.—p. 206.
Alcoholism as Sickness. L. E. Wexberg.—p. 217.
Alcoholism and Social Stability: Study of Occupational Integration in 2,023 Male Clinic Patients. R. Straus and S. D. Bacon.—p. 231.
Tolserol in Treatment of Postalcoholic State. M. Herman and A. S. Effron.—p. 261.
Psychometric Examination of Latent Homosexuality in Alcoholism. J. Botwinick and S. Machover.—p. 268.
Group Therapy in Alcoholism: Transcriptions of Series of Sessions Recorded in Outpatient Clinic. R. G. McCarthy.—p. 273.

Psychiatric Implications of Antabuse® Therapy.—This study evaluates the psychiatric implications of tetraethylthiuram disulfide (antabuse®) treatment of alcoholism, based on experience with 42 patients. In 8 of these 42 patients psychotic episodes developed, which were transitory in 5, responding promptly to the withdrawal of tetraethylthiuram disulfide and the use of mild sedation. Three were relatively prolonged. The projective, hostile person who feels threatened by help and who has diffi-

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ɩn asterisk (*) before a title indicates that the article is abstracted.

culty in forming interpersonal relationships is usually not a desirable candidate for treatment with tetraethylthiuram disulfide. A history of psychotic epidoses or an indication of incipient psychosis contraindicates treatment with this drug. Borderline schizophrenic adjustments, as well as character neuroses with transitional schizophrenic components, should be watched for. Five of the eight psychotic responses occurred several weeks after the patient's discharge from the hospital, and indications of mounting anxiety usually had been observable during the earlier tetraethylthiuram disulfide alcohol reaction tests. Watching for this anxiety may be helpful in recognizing and managing psychiatric complications. Of the three other breakdowns, one emerged shortly after the third tetraethylthiuram disulfide alcohol test in the hospital (four weeks after the beginning of tetraethylthiuram disulfide medication), one occurred at the first test, and the third was manifested prodromally during the first test. The incidence of therapeutic success is highest when tetraethylthiuram disulfide treatment is employed with persons selected on the basis of psychiatric criteria of suitability. Ability to respond to psychotherapy also makes response to this drug likely. A considerable schizophrenic gradient was present in all patients who revealed tendencies toward psychotic reactions.

Surgery, St. Louis

30:437-596 (Sept.) 1951

Observations of Surgical Training in America in Relation to Objectives of the American Board of Surgery. C. W. Schwegman.—p. 437.
Search for Lymph Node Metastases in Cancer of Rectum. L. F. Peltier.—p. 443.
New Operative Approach to Inflammatory Strictures of Rectum and Rectosigmoid. B. Eiseman and C. B. Mueller.—p. 448.
Fatal Complication of Mikulicz Operation and Mont Reid Procedure for Procidentia of Colon and Rectum. I. L. Lichtenstein and A. W. Ulin.—p. 456.
New Method for Obtaining Barium Enemas in Colostomy Patients. F. S. Cross.—p. 460.
Extensive Resection of Small Intestine Followed by Vagotomy: Experimental Study of Fat and Nitrogen Excretion on Dogs. E. C. Weckesser, J. L. Ankeney, A. F. Portmann and others.—p. 465.
*Transplantation of Ileum: Experimental Study. C. B. Mueller and H. W. Fischer.—p. 477.
Experiences in Experimental Portacaval Anastomosis. W. L. Jamison, T. J. Dugan, C. P. Bailey and H. P. Redondo Ramirez.—p. 484.
Coexistence of Goiter and Deaf-Mutism. O. P. Friedlieb.—p. 496.
Spontaneous Rupture of Esophagus: Report of Two Patients Treated Surgically with Survival. J. P. Carter, E. M. Alrich and E. C. Drash.—p. 500.
fluence of Cortisone on Survival of Homografts of Skin in Rabbit. J. A. Morgan.—p. 506.
Clinical and Statistical Studies of Cotton Suture Material with Special Reference to Cost. J. D. Steele and L. G. G. Glasson.—p. 516.

Transplantation of Ileum: *Experimental Study.*—In attempts to remove sigmoid and rectal lesions with preservation of the anal sphincter, new procedures are being devised and older ones modified. The authors of this paper suggest a method for restoring continuity of the large bowel with an interposed loop of ileum. Their work was done on nine dogs. A loop of terminal ileum was isolated by cutting the mesentery back to its root and dividing the bowel at each end. The continuity of the ileum was then restored by an open end-to-end ileoileostomy, and the mesentry was approximated. A rubber-shod clamp was left on the proximal end of the isolated ileal loop, while the distal end was occluded. The sigmoid colon was then divided. The proximal end of the ileal loop was swung over, and anastomosed to the descending colon. The mesenteries of the ileal loop and the descending colon were approximated down to the base of the mesentery of the descending colon. The mesentery of the sigmoid colon was incised and the rectum freed down to the anus. The ligature of the distal end of the ileal loop was secured to another ligature on the upper end of the sigmoid, which was to be resected. These two loops (the ileal transplant and the completely mobilized sigmoid) were replaced in the sacrum. Care was taken to carry the abdominal-pelvic dissection down into the internal sphincter. The perineal procedure was that of Swenson and Bill with a slight modification. Only four dogs survived, but the authors feel that the high immediate mortality should not detract from the value of the operation. The four surviving dogs, and all but one of those dying postoperatively, had viable ileal loops. Three animals with replacement of the rectum survived for relatively long periods, enjoying good healt
and were observed sufficiently long to evaluate stool habits. Tl
results indicate that continence may be obtained after a peri
of time, though only 1 cm. of rectum remains.

Cortisone and Survival of Homografts.—Homotransplantati
of pinch skin grafts was performed in 22 pairs of white albi
rabbits. One of each pair of rabbits was given cortisone, 4 n
per kilogram of body weight daily, and the other kept as
control. In all 22 controls the grafts healed primarily to
graft bed, but necrosis was well under way in many cases
the 6th day and was complete by the 10th to the 12th day in
cases. In 13 of the treated animals, the destruction of the gr
was definitely delayed at least during an observation period
from three to six weeks. These grafts remained viable,
there was continued epithelial spread from the graft border d
ing the period of observation. In two rabbits receiving cortisc
homografts were initially successful. However, in the third
fourth weeks, after the denuded area was epithelized, desqua
tion at the homograft sites occurred, native epithelium ap
ently replacing that of foreign origin. In another successf
treated animal, the grafts became completely necrotic wi
six days after cortisone was withheld, on the 18th day. In
other six treated animals, although some delay in the destruc
of the grafts was evident in comparison with the controls, ne
sis and death of the grafts occurred within two to three we
Five of these failures were in old males with very thick sk

Tennessee State Medical Assn. Journal, Nashville

44:365-404 (Sept.) 1951

Fluid and Electrolyte Balance in Health and Disease. A. S. M
—p. 365.
Recent Advances in Treatment of Acute Small Bowel Obstruc
Analysis of 80 Cases. B. O. Garner, M. L. Saylor and J. E. Hami
—p. 372.

Texas State Journal of Medicine, Fort Worth

47:613-672 (Sept.) 1951

*Studies of Factors in Congestive Heart Failure During Effective The
H. P. Reveley, G. R. Herrmann and J. A. Ortiz.—p. 617.
Significance of Bundle-Branch Block. R. P. Johnson, A. L. Messer
Shreenivas.—p. 621.
Surgical Treatment of Varicose Veins. A. W. Hartman.—p. 627.
Choice of Intravenous Fluids. M. M. Minter.—p. 632.
Psychoses Related to Childbirth. A. H. Hill and D. M. Keedy.—p.
Therapy of Deafness. W. K. Wright and F. R. Guilford.—p. 639.

***Factors in* Congestive Heart Failure.**—The concept of the
regulation of the fluid compartments of the body is essenti
an understanding of modern concepts of congestive heart fai
It is to be remembered that the fluid must be transported to
kidneys by the circulation, which in turn depends on myoca
integrity, and that the kidneys are sensitive to circulatory cha
and to pituitary and adrenal hormones. The "backward
sure" theory of the progression of congestive heart failure
been challenged as inadequate in explaining all of the associ
phenomena. A new concept of congestive failure, which emp
sizes extracardiac factors, has been derived. In this paper Rev
and associates report studies of kidney function in patients
congestive heart failure under the influence of aminophyll
a xanthine diuretic, and mercaptomerin (thiomerin®) sodiu
mercurial diuretic. Their purpose was to clarify the mechan
involved in the alleviation of edema. Simultaneous determ
tions were made of plasma volume (in terms of concentratio
Evans blue dye); venous pressure; specific gravity of the bl
hematocrit; renal clearance of sodium, potassium, and chlo
ions; and clearance of inulin and para-aminohippurate.
authors were able to confirm the depressing effect of merc
diuretics on tubular reabsorption of sodium. The circula
effects of mercurial diuretics apparently are secondary to
excretion of edema fluid. Clearance studies seem to indicate
aminophylline exerts its effect on the renal circulation. It
ments sodium and water excretion by increasing the glomer
filtration rate. Changes in tubular function after the adminis
tion of aminophylline are thought to be secondary to circ
tory effects.

FOREIGN

Brain, London

74:249-376 (Sept.) 1951

Interpretation of Experimental Studies of Cortical Motor Function: With Special Reference to "Operational View" of Experimental Procedures. F. M. R. Walshe.—p. 249.
Types of Visual Perseveration: "Paliopsia" and "Illusory Visual Spread." M. Critchley.—p. 267.
Thrombosis of Basilar Artery and Vascularization of Brain Stem. A. Biemond.—p. 300.
Sensory Changes in Nerve Blocks Induced by Cooling. D. C. Sinclair and J. R. Hinshaw.—p. 318.
Insensitivity to Pain. E. C. O. Jewsbury.—p. 336.
Further Studies of Effects of Cortisone and ACTH on Neurological Disorders. G. M. Shy and D. McEachern.—p. 354.
Case of Organized Visual Hallucinations in an Old Man with Cataract, and Their Relation to Phenomena of Phantom Limb. J. E. A. Bartlet. —p. 363.

British Journal of Cancer, London

5:153-288 (June) 1951. Partial Index

Studies on Incidence of Cancer of Lung and Larynx. E. L. Kennaway and N. M. Kennaway.—p. 153.
Negative Correlation Between Atherosclerosis and Carcinoma. O. Wanscher, J. Clemmesen and A. Nielsen.—p. 172.
Note on Geographical Variations in Cancer Mortality, with Special Reference to Gastric Cancer in Wales. C. D. Legon.—p. 175.
Estimation of Biological Dosage Factors in Clinical Radiotherapy. L. Cohen.—p. 180.
Differentiation in Rodent Ulcer Group of Tumours. B. Lennox and A. L. Wells.—p. 195.
Polarographic Serum Test and Other Serum Tests in Prognosis of Cancer. L. O. Butler.—p. 225.
Electrophoretic Behaviour of Normal and Pathological Human Sera in Relation to Polarographic Serum Test for Cancer. E. Boyland, L. O. Butler and B. E. Conway.—p. 235.
Effects of Ultraviolet Radiation on 3:4-Benzpyrene: Carcinogenic Activity of Water-Soluble Photo-Derivatives When Used with Croton Oil as Co-Carcinogen. C. B. Allsopp.—p. 273.
Effect of Hormonal Factors and Removal of Certain Organs upon Growth of Transplanted Rat Tumour. C. Funk, P. Tomashefsky, R. Soukup and A. Ehrlich.—p. 280.

Atherosclerosis and Carcinoma.—The observation that atheroclerotic lesions found at post mortem examination of the aorta nd coronary arteries of patients with malignant diseases apeared to be less pronounced than similar lesions found in perons without malignant lesions induced Wanscher and associates o make comparative studies on this problem. On the basis of ,835 autopsies they conclude that there is a decided difference n the degree of atherosclerotic lesions in patients with and without carcinoma. It is assumed that the presence of carcinoma nfluences the atherosclerotic lesion.

British Journal of Experimental Pathology, London

32:157-284 (June) 1951. Partial Index

Quantitative Studies in Diphtheria Prophylaxis: Some Observations on Correlation in Identified Guinea-Pigs Between Their Responses to More Than One Inoculation of Diphtheria Prophylactic. L. B. Holt.—p. 157.
Bodily Reactions to Trauma: Further Studies on Effect of Ischaemia on Clotting Factor of Muscle. H. B. Stoner and H. N. Green.—p. 183.
Factors Influencing Agglutinability of Red Cells. R. R. A. Coombs, M. H. Gleeson-White and J. G. Hall.—p. 195.
Valency of Antibodies. J. R. Marrack, H. Hoch and R. G. S. Johns. —p. 212.
Factors Influencing Development of Potential Immunity and Character of Secondary Response. M. Barr and M. Llewellyn-Jones.—p. 231.
Some New Observations on Diphtheria Toxin and Antitoxin. C. G. Pope, M. F. Stevens, E. A. Caspary and E. L. Fenton.—p. 246.
Envelope Substance of Pasteurella Pestis. C. R. Amies.—p. 259.
*Effect of Cortisone upon Some Experimental Hypersensitivity Reactions. J. H. Humphrey.—p. 274.

Effect of Cortisone on Experimental Hypersensitivity Reactions. —Studies were undertaken to ascertain whether the decrease in the Arthus and other reactions previously observed after administration of large doses of salicylate could be explained on the basis of cortisone-like action, resulting primarily from the salicylate itself or arising secondarily from adrenal stimulation. The author's technique measured the effect of drugs on the edema at the sites of reversed passive Arthus reactions in rabbits. It was found that a single dose of cortisone greatly diminished such edema. A dose of 0.5 mg. per kilogram of body weight was effective, but 2 mg. or more per kilogram was more effective. The effect of cortisone was apparent within one hour after injection and lasted for up to 24 hours. Similar but less marked effects on passive Arthus reactions were produced by colchicine. Subsequent studies showed that the administration of cortisone conferred a definite but minor degree of protection against anaphylactic shock in guinea pigs and that cortisone, but not colchicine, prevented Shwartzman reactions in rabbits. A comparison of the effects of cortisone with those of large doses of sodium salicylate suggests that the effects of salicylate upon hypersensitivity reaction may be mediated through the adrenal cortex.

Journal of Physiology, London

114:419-548 (Aug.) 1951. Partial Index

Measurement of Intestinal Blood Flow in Man. J. Grayson.—p. 419.
Foveal and Para-Central Spectral Sensitivities in Man. R. A. Weale. —p. 435.
Effect of Emotion and of β-Tetrahydronaphthylamine on Adrenal Cortex of Rat. M. Vogt.—p. 465.
Physiological Significance of Sweat Response to Adrenaline in Man. T. M. Chalmers and C. A. Keele.—p. 510.
Inhibitory Action of Acetylcholine with Special Reference to Small Doses. R. J. S. McDowall and R. Watson.—p. 515.
Variations in Circulation of Portal Venous Blood Within the Liver. P. M. Daniel and M. M. L. Prichard.—p. 521.

Lancet, London

2:411-456 (Sept. 8) 1951

*Hemispherectomy in Treatment of Infantile Hemiplegia. H. Cairn and M. A. Davidson.—p. 411.
Immediate Results of Sanatorium Treatment: Survey of 2,472 Cases. W. E. Snell.—p. 415.
Renal Anacidogenesis. K. Lundbaek.—p. 419.
Rate of Blood-Flow in Umbilical Cord. A. D. M. Greenfield, J. T. Shepherd and R. F. Whelan.—p. 422.
Treatment of Pulmonary Tuberculosis Complicated by Meningitis: Illustrative Case. H. V. Smith, H. Stevens and G. C. L. Pile.—p. 424.
Absorbable Gelatin Sponge in Experimental Surgery. G. Blaine.—p. 427.
Fatal Meningitis in Typhoid Fever Treated with Chloramphenicol. C. E. G. Smith and A. T. H. Marsden.—p. 430.
Sterilisable Thermometer for Measuring Intra-Abdominal Temperature. J. Grieve.—p. 431.

Hemispherectomy in Infantile Hemiplegia. — Infantile hemiplegia is the end-state of various pathological conditions affecting the cerebral hemisphere before or during birth, or in the first years of life. Most cases evolve in one of three ways: 1. The infant is observed to be hemiplegic after a difficult delivery. 2. The child appears healthy at birth, but an illness characterized by convulsions, coma, and fever, often diagnosed as "encephalitis," is followed by hemiplegia. 3. Without previous acute illness, the child has fits followed by hemiplegia. The authors disregard the cases of acute infantile hemiplegia in which physical and mental development is nearly normal and there are no fits. In the cases under consideration treatment is sought because of fits or mental abnormality. The hemiplegia affects the arm (especially the hand) more than the leg. The limbs are spastic and shorter and smaller than normal, and there is flexion contracture at the wrist and fingers and often talipes equinus. The patient may walk well, though with a limp. In the upper limb there are crude mass movements, often with an athetoid component. With this clinical state the opposite cerebral hemisphere is small; its lateral ventricle is usually dilated and there may also be porencephalic or subarachnoid cysts; the head and face are smaller than on the hemiplegic side. Until recently treatment was limited to anticonvulsant drugs, special schooling, physical therapy, and orthopedic operations on the affected limbs. Experiences by Krynauw and others with hemispherectomy induced Cairns to use this operation in three cases: a youth of 19, a girl of 7, and a young woman of 20. The results were dramatic. The fits have stopped and the hemiplegia is no worse; in two cases it is slightly improved, because the muscles are less spastic. The most remarkable improvement was in mentality. All three patients seem to have developed socially; one has shown great intellectual improvement, and the others have also improved in this respect. Behavior has changed dramatically. More experience is needed before the indications for cerebral hemispherectomy can be fully defined. It is not suitable for all cases, but it should be undertaken in any case of infantile hemiplegia with fits that cannot be controlled by drugs or in which there is backwardness or deterioration in the patient's intellectual or emotional state.

Medical Journal of Australia, Sydney

2:33-68 (July 14) 1951. Partial Index

Teaching of Anaesthesia, Especially in Relation to Safety and Resuscitation. N. R. James.—p. 33.

Surgery and Surgical Teaching Overseas. A. E. Coates.—p. 38.

Anuria. J. Isbister.—p. 42.

*Intensive Oxygen Therapy as Possible Cause of Retrolental Fibroplasia: Clinical Approach. K. Campbell.—p. 48.

Guillain-Barré Syndrome: Three Cases in Aboriginal Natives. E. G. Saint. —p. 50.

Intensive Oxygen Therapy and Retrolental Fibroplasia.—The occurrence of retrolental fibroplasia is reported in 27 of 181 premature infants born during the three year period of 1948 to 1950. The birth weights of these infants varied from 1 lb. 7 oz. (652.04 gm.) to 3 lb. 8 oz. (1587.6 gm.). In the great majority of these infants there had been 30 weeks of gestation or less. The infants were in three different institutions. Management was identical except for the amount of oxygen used. The first group, comprising 123 infants, was given oxygen by oxygen crib in which the percentage of oxygen was from 40 to 60. The oxygen was often given prophylactically as well as during the periods of cyanosis; it was used more extensively than in the other groups. Of these 123 infants, designated as the high-oxygen therapy group, retrolental fibroplasia developed in 23. Most, but not all, of the infants in the second group were given oxygen by intranasal catheter or funnel in an electrically heated and humidity-controlled crib, while the infants in the third group received oxygen mainly by tent, sometimes by oxygen crib, and occasionally by intranasal catheter or funnel. These two groups together were designated as the moderate-oxygen therapy group and comprised 58 infants, in 4 of whom retrolental fibroplasia developed. The different incidence of retrolental fibroplasia in these two groups is statistically significant. The duration of oxygen therapy in infants with retrolental fibroplasia varied from eight days to intermittent therapy for six weeks. Oxygen was given to many premature infants for periods up to two and a half weeks without the condition developing and to a few for as long as four weeks without eye injury. It is suggested that high concentrations of oxygen may have a potentially toxic effect on premature infants and that this may have been enhanced in one of the author's patients by pyrexia and by toxemia in several others with a history of pneumonia. The generalized vascular damage and edema so produced may affect the eye and form the starting point for retrolental fibroplasia. The prophylaxis of his condition consists in the following measures: (1) an endeavor to carry the fetus to 33 weeks' gestation or more; (2) avoidance of intensive oxygen therapy by giving oxygen only when the infant is cyanosed and not as a prophylactic measure; (3) avoidance of overheating; (4) prevention of infection, and, should it occur, its prompt and efficient treatment.

Medizinische Monatsschrift, Stuttgart

5:597-668 (Sept.) 1951. Partial Index

Electric Shock Therapy: 12 Years' Experience on Mode of Action and Indications. R. Brickenstein.—p. 597.

Urogenital Tuberculosis: Pathology, Diagnosis and Therapy. W. Lehmacher.—p. 601.

Diagnosis and Therapy of Rheumatism. H. Gehlen.—p. 619.

Changes in Serum Protein in Rheumatic Polyarthritis. G. Schettler. —p. 622.

Gastroscopy After Operations on Stomach. E. Scherer.—p. 628.

Pathogenesis and Treatment of Acute Pancreatitis. H. Becher and H. Laux.—p. 633.

Differentiation of Posterior Wall Infarcts in the Electrocardiogram. H. Löffler.—p. 638.

*Mandelic Acid Therapy in Colibacillary Cholecystitis-Cholangitis: Experimental Proof of Elimination and Bactericidal Action of Mandelic Acid in Inflammatory Disorders of the Bile Passages. R. Lücking.—p. 642.

Mandelic Acid Therapy in Colibacillary Cholecystitis and Cholangitis.—Whereas formerly mandelic acid was employed only in colibacillary infections of the urinary tract, in recent years attempts have been made to employ it in enterocolitis, in perityphlitic and periproctitic abscesses, in diffuse peritonitis and in colibacillary cholecystitis and cholangitis. In these experimental studies it was found that intravenously administered mandelic acid appears in the bile and that in cholecystitis and cholangitis it finds in the bile passages the conditions necessary to exert bactericidal effects on colon bacilli. It was shown that mandelic acid has choleretic characteristics and is capable of influencing the acidity of gastric and duodenal secretions, which the author regards as additional proof of its therapeutic val Mandelic acid is more bactericidal in acute than in chronic orders of the biliary tract. The intravenous method of admi tration used in these studies has no advantage over oral adm istration, the latter being, moreover, more economical. bacteria are influenced much less readily by the massive, sh lived presence of antibacterial substances than by prolonged continuous presence of such substances. Parenteral therap indicated only at the onset of urgent conditions and in case which oral therapy is not advisable. The intravenous dose of drug was 20 cc. three times daily, injections being made slowly. For oral administration the author prefers magnes and ammonium mandelate. He regards from 12 to 15 gm mandelic acid substance as an adequate daily dose. A ketog diet or suitable medication and limitations of fluid intake valuable as supportive measures.

Münchener medizinische Wochenschrift, Munich

93:1693-1780 (Aug. 31) 1951. Partial Index

Yeast Therapy as Biologic Treatment of Cancerous Organism. F. schalk.—p. 1707.

Electrokymography and Phase Analysis of Heart. K. Heckmann.—p.

Bacterium Coli and the Problem of Tuberculosis. W. Freund an Martens.—p. 1719.

Salicylate in Rheumatic Diseases. W. Hangarter and B. Pet —p. 1729.

*Lying on the Abdomen as a Therapeutic Measure. R. Stahl.—p. 17

Reflex Action Mechanism of Ultrasonics in Sympathetic Nervous Sy W. Hoenig.—p. 1743.

Comparison of Leukocyte Count in Light-Field Microscopy and the Fluorescence Microscope. H. Mai and W. Kosenow.—p. 1746.

Lying on the Abdomen as a Therapeutic Measure.—In Rautenberg used the prone position in pulmonary diso with beginning liquefaction of exudate and deficient expec tion and described the results as life-saving. Stahl obse patients with tuberculosis of the vertebral column at Rol clinic in Leysin who were kept lying on the abdomen from 12 hours a day. Percussion of patients with different typ physiques revealed that in the supine position the lower of the lung differ little from those found in the sitting po but that in the prone position the limits are lower in all of physiques. Roentgenograms reveal that during both ins tion and expiration the postdiaphragmatic sinus is wider lower in the prone than in the supine posture. The mal opening of the posterior diaphragmatic sinus facilitates ter ventilation and blood perfusion in the lower lobe of the The abdominal posture can be tried in most patients except wounds, suppurations, or arthritis make it impossible or severe cardiac insufficiency, dyspnea, or a tendency to apo contraindicate it. The musculature is strengthened, and, in tion, the metabolism is stimulated and the complications re ing from prolonged lying on the back are prevented. The tion may have prophylactic value in pneumonia. unconscious patients can be put in this position, since it f tates evacuation of fluids from nose and mouth. The prone tion, preferably combined with occupational therapy, ca employed for group treatment in hospital wards by letting tients assume this position twice a day for from 10 min up to an hour. The author recommends the use of a flat matt A wedge-shaped cushion is placed under the chest, so that patient can lean his elbows over it; the head is held up an not to be supported. In some patients a ring-shaped cushion be placed under the abdomen. A wedge-shaped cushion u the shins prevents an excess load on the toes. The patients read, write, and do handicraft work in this position, in fact should be urged to work at something while they are in position, because with suitable diversion, they will maintai longer. Furthermore, activity in this posture will strengthen musculature of neck, shoulders, arms, and back.

Philippine Medical Association Journal, Manila

27:397-434 (June) 1951

Liver Complication of Amebiasis in Children. A. V. Tupas and D Dauis-Lawas.—p. 397.

Deafness—Its Therapy. R. J. Ongsiako Jr.—p. 404.

Early Signs of Malignancy of the Male G-U Tract. L. F. Torres —p. 409.

Coronary Thrombosis with Myocardial Anterior Infarction. M. sumbing Sr.—p. 412.

BOOK REVIEWS

Ophthalmology. By Arno E. Town, M.D., Professor of Ophthalmology, Jefferson Medical College of Philadelphia, Philadelphia. Cloth. $10. Pp. 511, with 212 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

The author, assisted by 11 contributors, has prepared a textbook for the undergraduate and the general practitioner. It is written from the viewpoint of the ophthalmologist and concisely presents ocular disease and therapy rather than an integration of ophthalmology with general medicine. However, the general conditions commonly causing ocular signs are adequately discussed, and the chapter on the retina contains an excellent discussion of ophthalmoscopy in systemic disease. The first portion of the book, which is devoted to the objective examination of the eye, contains a particularly well-written section by Wagman on the physiology of vision. Succeeding sections concern the various parts of the eye and adnexa and anatomy, anomalies, diseases, and therapy. There are additional chapters on glaucoma, neuro-ophthalmology, ocular changes in systemic disease (in tabular form, which could well be expanded), therapeutics, eye injuries, and surgery. The various authors' contributions have been well integrated, and there is no unevenness and little overlapping of subject matter. References are not exhaustive but indicate the significant recent work in the field. The illustrations are pertinent, numerous, and well reproduced; mechanically the book is excellent.

There are a number of references to corticotropin (ACTH) and cortisone, but, as might be expected, the tremendous clinical implications of these hormones in ophthalmology have not been reflected in the text. The frequency of sensitization to local penicillin is not emphasized, and the reader may conclude that it is the antibiotic of choice for topical application. Similarly, sulfathiazole ointment is recommended for local use, although it causes sensitivity in a large number of users. Some of the therapeutic concepts presented are controversial, and the wisdom of their presentation in an introductory text may be questioned. The book may be added to the growing list of texts available for undergraduate teaching of ophthalmology; it is probably the most up-to-date of any currently available.

Visceral Radiology. By Emerik Markovits, M.D. Cloth. $24. Pp. 612, with 682 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1951.

The author was educated in Hungary and is now living in New York. Formerly attached to the Holzknecht-Institute of Vienna, Dr. Markovits is now radiologist of the Steiner Cancer Clinic, Atlanta, Ga. In 1949 he published "Bone and Joint Radiology." The distinctive feature of the present work is best described by the author in his preface. He says, "As in my previous book, 'Bone and Joint Radiology,' the subjects of this volume are also viewed in the mirror of the basic sciences of anatomy, physiology, and pathology, rather than on simple experience in interpreting roentgenograms and fluoroscopic images." The author further says, "The clinical responsibility of the radiologist is more and more apparent and has often to be shared by other specialists." The author has succeeded in presenting his subject in the manner intended. Anatomy, physiology, the basic sciences, and clinical history are emphasized throughout.

The book is divided into six parts. Fully one-third is occupied by Part 1, "The Chest and the Respiratory System." The author has covered an extensive area of related clinical aspects as they appear to the radiologist in his examination. Fluoroscopic observations are emphasized. Part 2, "The Circulatory System" deals largely with that portion of the circulatory system contained in the thoracic cage. Part 3, "The Digestive System" covers the radiologic aspects from the esophagus to the distal colon. "The Abdomen and Abdominal Organs," Part 4, is a small section and covers the subject rather generally. Part 5 is "The Genitourinary System," and Part 6 concerns the central nervous system and is brief compared to the other portions.

Each part contains a number of rather terse charts of differential diagnosis. Here the author has integrated the clinical aspects with radiologic observations. The volume is profusely illustrated with both radiographic reproductions and many schematic charts. From the standpoint of the advanced radiologist the subject matter is largely elementary and hardly original. The author has freely drawn from other authorities but with proper recognition in every instance. The volume would be helpful to the clinician and would be an excellent guide for students in radiology as well as a satisfactory pattern for the teacher to follow in undergraduate teaching. The most commendable feature of the entire work is the emphasis on the correlation of clinical aspects with radiologic studies and the importance of evaluation of radiologic interpretations in terms of clinical manifestations. The reproductions are excellent, and the schematic charts are well done. The volume also includes an extensive bibliography, upon which the author has presumably drawn liberally.

Histologie und mikroskopische Anatomie des Menschen. Zweiter Band: Organe und Systeme. Von Dr. W. Bargmann, o. ö. Professor der Anatomie an der Universität Kiel. Cloth. 45 marks. Pp. 563, with 412 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1951.

This book deals with the specific histology of the various organ systems. Interestingly enough, the circulatory system is combined with the defense system, including not only the blood but also the spleen, the lymph nodes, and the reticuloendothelial and lymphoepithelial systems, the last-mentioned including the tonsils and thymus. Otherwise, the system organization follows more conventional lines. The attempt to incorporate physiological, biochemical, and submicroscopic morphologic findings into a textbook of histology succeeded surprisingly well; pathologic observations also find extensive consideration, and the correlation with the gross anatomy is well accomplished. The illustrations are almost entirely black and white drawings, some of them schematic, all of them of excellent didactic value and well reproduced. An unusually large number are based on original work of the author, who has contributed much fundamental information to histology in general. The discussion is rather detailed, in many places more than required for the medical student, but serves well as a reference book. A small number of well selected literature references, almost exclusively German, follow each chapter and serve as a good starting point from which to obtain further information. In toto, the book presents histology at its best and should be a help to the American who is interested not only in good histologic illustrations but also in obtaining finer points of information.

Radioactivity Applied to Chemistry. Arthur C. Wahl, editor, and Norman A. Bonner, assistant editor. Cloth. $7.50. Pp. 604, with illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, 1951.

The purpose of this book is to acquaint the reader with the possibilities of applying radioactivity to various fields of chemistry and to furnish him with a summary of the work that has already been done. The book is divided into two parts. The first deals with the application of radioactivity to chemical kinetics, structural chemistry, self-diffusion studies, analytical chemistry, surface determination, and the discovery and investigation of the newer elements. Isotopic exchange reactions, behavior of carrier-free tracers, chemical phenomena accompanying nuclear reactions, and emanation methods are also described. The second part of the book contains 18 tables corresponding to the subject matter of the text and summarizing the data found in the literature to January, 1950. An important contribution to the rapidly growing literature of radiochemistry, this book will be of great interest to the research worker and student in this field.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Large Scale Rorschach Techniques: A Manual for the Group Rorschach and Multiple Choice Tests. By M. R. Harrower, Ph.D., and M. E. Steiner, M.A., Research Psychologist, General Electric Company, Bridgeport, Connecticut. With contributions by Floyd O. Due, M.D., Assistant Clinical Professor of Psychiatry, University of California Medical School, San Francisco, Beatrice A. Wright, Ph.D., Assistant Professor of Psychology, San Francisco State College, San Francisco, and M. Erik Wright, Ph.D., M.D., Professor of Clinical Psychology, Department of Psychiatry, University of Kansas Medical School, Lawrence, Kan. Publication number 82, American Lecture Series, monograph in American Lectures in Psychology. Edited by M. R. Harrower, Ph.D. Second edition. Cloth. $8.50. Pp. 353, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

This is intended as a manual for the group Rorschach and multiple choice tests. It presents the procedure in administration and scoring for both tests, together with various studies that have been made in an attempt to establish their validity. The introduction of group procedures with the Rorschach caused much controversy over their validity and reliability. Many authorities objected to these methods on the grounds that they destroy the essential nature of the Rorschach, so that they can never hope to achieve comparable results with the individual method. This is freely admitted by the authors, but it is emphasized that the group procedures are not meant to replace the individual Rorschach; they are meant to be used as screening devices when large-scale psychological testing is required. Thus, the question is not whether the group procedures are as good as the individual Rorschach but whether they are better and more economical in time and money than the psychometric screening devices we now have. The answer to this question can only be obtained through further research. To fully understand the group procedures and their results it is advisable that the reader have some previous knowledge of scoring and interpretative principles for the individual Rorschach, since they are not given in the book.

This edition contains several studies not found in the first edition (1944). The most valuable is a statistical comparison between the group and individual Rorschach methods as to the locations, determinants, and contents "pulled" by each card for normal persons. This, together with the studies of frequency of rejection and distribution of anatomic answers on each of the 10 cards and the list of popular answers, can be a great aid even to the clinician interested only in the individual Rorschach. The section on interpretative principles in differential diagnosis provides a good review of pathognomonic indicators, for they are resented in a clearer and more condensed form than in the more asic texts by Klopfer and Beck. It tends to be dogmatic, however, and over-generalized, so that one who is unfamiliar with the Rorschach may be led to accept them without qualification. This is not intended to be the last word on the group Rorschach and multiple choice tests, but rather it is meant to point the way to future research. Clear in its presentation of experimental design and the statistical methods used, this book is an excellent example of the scientific approach to a study of personality.

Electroencephalography in Clinical Practice. By Robert S. Schwab, M.D., Director of Brain Wave Laboratory, Massachusetts General Hospital, Boston. Cloth. $6.50. Pp. 195, with 106 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2. 1951.

The purpose of this monograph is to discuss the uses and limitations of electroencephalography in the diagnosis and study of diseases of the nervous system. It is addressed to neurologists, neurosurgeons, psychiatrists, and internists who treat neurological patients. The monograph is divided into nine chapters. The first four chapters concern the history of the development of electroencephalography, the technique, and the criteria for the separation of normal from abnormal records. Chapter 5 deals with the findings in epilepsy; Chapter 6 with other neurological and neurosurgical problems, and Chapter 7 with the electroencephalogram in psychiatry. These chapters are well written and give the clinician a clear summary of the value of electroencephalography in diagnosis. Chapter 8 discusses briefly the use of the electroencephalogram in research. Chapter 9, which deals with laboratory organization, training of the staff, and interpretation of the record, is perhaps unnecessary in a monograph not intended for the electroencephalographer.

The format of the book is good. The illustrations are clearly reproduced and serve their purpose of assisting the reader to understand the abnormal findings in various morbid conditions. There is a good bibliography at the end of each chapter and an adequate index. Most of the books previously published on electroencephalography have been in the nature of atlases and are of value chiefly to the electroencephalographer. This monograph fills the need of the clinician for a book that explains the value and limitations of the electroencephalogram in diagnosis. It should be in the library of all physicians who have occasion to refer their patients to the electroencephalographer.

A Citizens' Handbook of Sexual Abnormalities and the Mental Hygiene Approach to Their Prevention. By Samuel W. Hartwell, M.D. Report to Committee on Education of Governor's Study Commission on Deviated Criminal Sex Offender, State of Michigan. Paper. Pp. 71. Lansing, 1950.

The increased prominence of crimes by deviated sex offenders and the lack of understanding on the part of the public of what constitutes sex deviation has led Dr. Hartwell to prepare this report, which covers types of sexual deviation, disputed questions and fallacies, mental hygiene of sex, and practical aspects of the problem.

This report could be understood by an informed layman or a physician but would be not too helpful to the average person without training in psychology, child growth and development, the basic concepts of psychoanalysis, or psychopathology. The first chapter contains a rather detailed description of the common patterns of deviation and the effect each is likely to produce upon a society. Many of the misunderstandings of the layman who reacts violently to sexual deviation are explained in the second chapter. The third chapter covers the growth and development of personality and many of the reactions toward sex life from a psychoanalytical point of view. This includes an excellent chapter of sexual instruction, which could well be used by the parent groups, the church, and the school in planning instructional programs for children. The last chapter outlines the difficulties of solving the problem of sex deviation, particularly in regard to the use of the courts, punishment, and therapy. The last page contains a short but complete bibliography on sexual deviations, mental hygiene, and social psychiatry. Dr. Hartwell and the commission should be complimented for making a report of this character available to those who are concerned but uninformed on the specific problem of the deviated criminal sex offender.

John Hunter. By S. Roodhouse Gloyne, M.D., Consulting Pathologist, London Chest Hospital, London. Cloth. $3.50. Pp. 104, with 17 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

In his short biography of John Hunter, the famed Scottish surgeon, Dr. Gloyne has given a concise account both of 18th century English medicine and of Hunter's contributions to that era.

Hunter is followed through the formative years, when a strong interest in biology and an equally strong dislike for books and the arts is manifested. His early investigation of so many animal species was responsible in part for the eventual accumulation of the enormous variety of specimens in his museum. That he shunned the classics and did not write with ease is evidenced by his halfhearted attempt at an Oxford education and by the scant number of books and letters he wrote.

Next are described the early days in London with his brother William, who was also to become a well-known surgeon. Their anatomy school soon was acclaimed throughout Europe and served not only to train new surgeons in the "art" of dissection but to hasten the acceptance of progressive medical education in England and on the continent. Hunter's rise to the post of surgeon-general to the army and surgeon to the king was gradual. Many years of research in previously unexplored fields affected his health. His death in 1793 ended a fruitful life of 65 years.

The author is an obvious admirer of John Hunter and in fact could be criticized for devoting a disproportionate amount of space to the defense of Hunter against even the mildest of innuendos of previous biographers. However, Hunter's life is well-documented with photographs, and a complete bibliography is included. These features, in addition to the fluent style of Gloyne, make the book both informative and pleasurable reading.

QUERIES AND MINOR NOTES

CANCER OF THE LUNG

To the Editor:—*A 55-year-old man has cancer of the lung established by bronchoscopy, biopsy, and x-ray. Complete surgical removal of the left lung has been proposed. Symptoms began two or three months ago with a "cold" and productive cough, relieved by expectorants but not by antibiotics. Sputum has been negative for pathogens. Physical signs were limited to some dulness in the lower lobe of the left lung. There was no blood in the sputum. Weakness and cachexia have developed, with pain to the left of the spine at the lower rib margin, radiating around to the front. Further studies show a small grayish mass in the left bronchus; no cancer cells in the sputum (Papanicolaou stain); no x-ray evidence of metastasis to the skull; an enlarged, smooth liver reaching to the umbilicus; and stones in the gallbladder. Results of gastrointestinal study were negative. The patient has diabetes mellitus, and in the last two years he has had three severe attacks of coronary thrombosis. Psychologically, he is a bad risk. Kindly comment on the following: 1. Do metastases already exist; are they likely to occur; and where are the most likely locations? 2. Are the risks of this operation too much, considering his heart and diabetes? Will there be much deformity, as lordosis or kyphosis? 3. What would be his life expectancy with and without operation? Would the operation be his only hope for some relief? 4. Would high voltage roentgen therapy, radium, isotopes, or hormones be of any value if operation is refused?*

M.D., New York.

Answer.—The chance of a cure in this patient seems relatively small, because the severe pain probably represents invasion of the lower thoracic wall and because the enlargement of the liver may be due to metastasis. The cachexia, however, might be due to anorexia and sleeplessness from pain and worry. Although the heart condition and, to a small extent the diabetes, increase the surgical risk, this is less than the risk of an uncured carcinoma. As distant metastasis has not been demonstrated, a prompt exploratory operation (assuming sufficient respiratory reserve for the intended lobectomy or pneumonectomy) may reveal that no metastasis to the mediastinum has occurred, that invaded parietal pleura overlying the pulmonary lesion may be removed by extrapleural dissection, and that all the carcinoma tissue can be removed by lobectomy or pneumonectomy.

To answer the specific questions: 1. Metastasis has not been demonstrated. It almost always occurs in late bronchogenic carcinoma and occasionally occurs early. Most frequently it is in the hilar, mediastinal, lower cervical, and axillary lymph nodes, in the spine and other bones (roentgenological recognition is often later than clinical symptoms and signs), brain, liver, and adrenals. 2. As to operation, in fighting cancer, great risks are justified. If an uncomplicated resection operation can be performed, the patient will probably leave the hospital in about 10 days, and there should be no scoliosis, lordosis or kyphosis. 3. Without successful surgery, death will probably occur in 3 to 12 months. Only surgery can cure a true bronchogenic carcinoma (excluding grade 1 carcinoma or adenoma or carcinoid). 4. High voltage roentgen therapy sometimes temporarily relieves pain and the symptoms of bronchial obstruction but only rarely lengthens life. Such treatment is only occasionally used after apparent complete cure of a bronchogenic carcinoma. Radium, isotopes or hormones have not been demonstrated to be of value.

PETTING, KISSING, AND TUBERCULOSIS

To the Editor:—*What are the chances of contracting tuberculosis at parties at which there is the usual petting and kissing? I am wondering about the advisability of following such parties with a prophylaxis of some sort.*

M.D., Illinois.

Answer.—Many tuberculous infections are transmitted by kissing. In the average population, however, the chances are not over about 1 in 500 that unknowns would have a form of disease that could be transmitted by kissing. Of each of the exposed guests, probably only one in many would have bacilli aspirated into the lungs where infection could result; of each such aspiration perhaps only 1 in about 10 would produce a significant lesion, with about one-third of the latter resulting in clinical disease.

The chances of disease resulting are, therefore, only one to many thousands for each person present. In a group of 10 persons, there is a possibility that some may be diseased, both male and female. An increase in size of the group increases the possibility of spread of infection but still leaves the chances of infection by such means remote. Furthermore, the time between the development of positive sputum and the diagnosis generally is short in that age group. Either they will have had a chest x-ray, or clinical symptoms will advance so rapidly that a diagnosis can be made clinically within a period of a year. Like lightning, however, an infection may strike from any quarter at any time, and there is no guarantee of safety. There is almost as much danger from persons coughing or contaminating objects in public. After all, the chances are little more than are encountered in daily life and there is a calculated risk in almost anything. Since man is a social creature, he must expect risks in social contacts, even in petting parties. The other alternative is to become a hermit or a bore.

The best way to insure against acquiring infections from such sources is to know in general the personal and family history of the persons present. Appearance alone is deceiving and is unfair to many poorly nourished girls, while certain open cases of tuberculosis appear in robust persons. Above all, one should not become a hypochrondriac. From a public health standpoint, such parties are not to be recommended.

There is no certain way of prophylaxis against tubercle bacilli in the mouth, especially several hours after such a party. Most of the bacilli, however, would be swallowed and would pass through the gastrointestinal tract. Only a few are aspirated or gravitate into the lungs.

INDUCTION OF LABOR

To the Editor:—*It seems to be an increasingly common practice to induce labor for no indication other than the convenience of the attendant or the parturient. Can this be considered good obstetric practice?*

M.D., Nebraska.

Answer.—The answer is unquestionably that this is not good practice in general. One must, however, consider in this problem the following factors. 1. The group at Evanston Hospital, Evanston, Ill., found that it was perfectly safe to induce labor by rupture of the membranes if the patient was near term, the cervix was soft and effaced, and if there were no contraindications such as malposition. 2. There is an increasing number of patients with very short labors with their first pregnancy and there are many multiparas who barely get to the hospital in time for delivery. 3. With the advantage of the sulfonamides, the antibiotics and better prenatal and intranatal care, there is now such a low morbidity and mortality that many procedures are probably done now that never would have been dreamed of 20 years

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

ago. 4. With the additional factor of better pediatric care, more mature babies are being saved. 5. Many of us at times have wished we could induce labor early for one reason or another, such as toxemia or cephalopelvic disproportion. 6. One must admit that if it were possible and safe, it would certainly be to the advantage of both patient and physician for the baby to be delivered at a reasonable hour.

Perhaps in a few more years we will consider this normal practice and until then accept an attitude of tongue-in-cheek toward it, rather than one of lifted eyebrows. Certainly the burden of proof of its safety is on the shoulders of those who practice early induction.

NEUROFIBROMATOSIS

To the Editor:—*What is the treatment of neurofibromatosis, and what should be done for the pigmentations that probably are the result of the irritation of the nerve covering near the skin? Is there any known specific or preventive treatment for neurofibromatosis?* *Jacob Aisenstat, M.D., New York.*

Answer.—Neurofibromatosis or Von Recklinghausen's disease is a hereditary condition. The pigmentation in the skin is part of the disease and not the result of nerve irritation. Ordinarily, the cutaneous manifestations of the disease require no treatment. At times, however, large or pendulous plexiform neurinomas involving the skin produce unsightly or inconvenient masses that can be excised. Neurofibromas within various peripheral nerves may interfere with the function of those nerves. These usually can be extirpated without serious injury to the nerve itself. Sometimes neurofibromas in the soft tissues of the body undergo sarcomatous degeneration, but this usually occurs in persons with isolated lesions. It is seldom seen in generalized neurofibromatosis. These sarcomas are often not highly malignant, although they do tend to recur locally if they are not completely excised. At times a more malignant variety is seen. The most serious lesions that occur in this condition are those neurofibromas that occur within the spinal canal and press on the spinal cord; the neurinomas that develop on the various cranial nerves, particularly on the eighth or auditory nerve, compress the brain stem and produce increased intracranial pressure; and meningiomas that arise from the meninges covering the brain and which are often multiple. Such tumors must be dealt with as one uld deal with any intracranial or intraspinal tumor; that is, by ision, if possible. There is no specific treatment for neuro- omatosis.

SYPHILIS

To the Editor:—*A patient with latent congenital or latent acquired (from wet nurse) syphilis was treated energetically one year ago but still has a 1 + blood Wassermann reaction. He is married and has two children, living and well. 1. Can latent congenital syphilis be cured? 2. Can congenital syphilis be transmitted to the third generation? 3. Does the positive reaction mean that he has syphilis? 4. Is congenital or latent syphilis contagious to partners? 5. Can he be cured by penicillin? 6. Can a negative blood reaction be obtained in latent syphilis after treatment?*

Teh Hwa Shih, M.D., Taipeh, Taiwan (Formosa) China.

Answer.—1. Latent syphilis may remain latent throughout life, progress into some form of late syphilis, or be cured. 2. Transmission of congenital syphilis into the third generation is exceedingly rare. 3. The positive reaction in this case probably means merely that the serologic test of the blood still gives a slightly positive reaction. The status of the cerebrospinal fluid should be determined. 4. No. 5. A cure cannot be predicted. If it is decided to treat this patient, penicillin should be employed because it is quicker, less expensive, and less dangerous than heavy metals. The ultimate results, however, are no better than those from heavy metals. If the patient has had an adequate amount of treatment and remains well clinically and the serologic titer of the blood does not rise, it is not necessary to give more treatment. 6. The serologic reaction of the blood may become negative in time, remain fixed, or become progressively stronger. Only in the latter event should one consider giving more treatment.

CYSTITIS FOLLOWING INTERCOURSE

To the Editor:—*The query entitled "Cystitis Following Inter
course" in* The Journal, *August 18, 1951, page 1546, wa
incompletely answered. The patient involved unquestionabl
has chronic urethritis which is aggravated by the sex ac
Cystitis following intercourse is a common complaint in som
of these cases. Dr. Hardy stated that the aggravated symp
toms were controlled with antibiotics, indicating acu
exacerbations of the chronic urethral infections. A caref
urethroscopic examination would disclose this patient's patho
ogy and suggest the treatment.*

Leander W. Riba, M.D.
720 North Michigan Ave., Chicago.

To the Editor:—*On page 1546 of* The Journal, *Aug. 18, 195
is a question from Dr. Hardy entitled "Cystitis Followi
Intercourse." The symptoms associated with cystitis follo
ing intercourse are typical of that produced by urethr
trauma, and I think the answer will be found only by doi
a complete urethroscopy or panendoscopy.*

*It is rather easy in these cases to put a sound into the ureth
and palpate vaginally over the instrument. Usually there w
be a tight meatus, and I doubt that this patient will be ab
to tolerate a No. 30 FS, which is usually about normal. The
probably will be some periurethritis, and perhaps some sm
abscesses can be palpated. Occasionally it is possible to
press pus by palpation over the instrument. If there is a mea
stricture, a simple meatotomy, which can be done in the offi
usually is curative after the urethra is dilated for six to eig
weeks to allow healing in the normal position. There may
some bladder neck or posterior urethral polyps or granu
tions that can be treated transurethrally.*

*I disagree strongly with the statement that a psychiatr
will be necessary. It is true that many such patients have be
referred to psychiatrists without a complete examinati
which should include urethroscopy, but it is much like dia
nosing pulmonary tuberculosis without sputum examinatio
or x-rays for confirmation.*

*If the urethra is the source of trouble, it is logical to
how an inflamed, perhaps infected, urethra will interfere w
intercourse for the female and would certainly result
cystitis after the trauma from intercourse had pushed enou
infection from the urethra into the bladder. In the* Jour
of Urology (**61:**557 [March] 1949) *I reported on this matt
and the writings of Dr. A. I. Folsom should have called
attention of the medical profession to this problem in the pa*

Norborne B. Powell, M.D.
801 Hermann Professional Bldg.
Houston 5, Texas.

To the Editor:—*I would like to take issue with the answ
to the question on cystitis following intercourse appearing
*The Journal *of Aug. 18, 1951 (page 1546). Information w
submitted that this woman repeatedly had cystitis one to thr
days after intercourse and at no other time. The urinary infe
tion was controlled promptly by chemotherapy or antibioti
and was not apparent between attacks. The point was not ma
that the urethra is the most probable site of disease, and
infection of Skene's glands should be ruled out first. Cystosco
was advised. It is often assumed that cystoscopy includes o
servation of the urethra, but too frequently it does not. Cyst
urethroscopy should be advised, and in this case the urethro
copy is of greatest importance. A small diverticulum of th
urethra or a pseudodiverticulum in the form of a pocket
the site of an old infected Skene's gland may be present. Th
seems to me to be a clear-cut picture of organic disease. Th
the gastrointestinal tract might be simulating cystitis and th
last suggestion that the patient might need a psychiatrist see
far afield for a patient with pus in the urine controlled wit
drugs.*

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Medical College of Georgia, Augusta.

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COMPLETE FUNCTIONAL RECOVERY AFTER CORONARY OCCLUSION AND INSUFFICIENCY

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and
Harry L. Jaffe, M.D., New York

Three decades have elapsed since coronary occlusion became widely recognized as a clinical entity. It is now possible, therefore, to have a comprehensive view of the acute attack and to study its subsequent course among the many patients who have survived. At first, only the severe attacks were recognized as occlusions and their mortality rate was high. The prognosis for all patients with coronary occlusion, therefore, was considered to be poor. Later, the introduction of early and complete bed rest, a low-calorie diet, and the discreet use of drugs saved many lives.[1] It is now relatively simple to recognize mild and atypical acute coronary episodes, from which the patient usually recovers. The mortality rate in first attacks of the disease is, at present, only 10% or less. As a result, the early pessimism concerning an acute coronary occlusion has gradually diminished.

The progress of patients who have survived an occlusion has, hitherto, received only sporadic study.[2] A number of years ago White and Bland [2a, e] and the present authors, with Dack,[2d, f] pointed out that one-third of the patients who sustained an occlusion had no symptoms afterward and did not have to restrict their activities. One-half of them resumed gainful employment. In a recent series of 84 patients, 43% were working one year after the attack.[2g] Occasionally, patients have lived for 20, and even 40 years, after an occlusion.[3]

Despite these findings, many physicians and laymen still believe that a coronary occlusion necessarily causes a marked reduction in the patient's activities and a marked decrease in his life expectancy. It has even been stated that the average duration of life, after an acute occlusion, is 4.2 years.[2b]

Our previous follow-up studies and our more recent experience have increased our optimism concerning coronary occlusion. We have been more and more impressed by the large number of patients who have made a complete functional recovery and who have led active lives for many years. In the present report we shall discuss this latter group of cases; later we shall consider those patients who continued to have symptoms after the attack.

In addition to the cases of acute coronary occlusion, we have reviewed those with acute coronary insufficiency.[4] The latter results from a sudden disproportion between the coronary flow and the needs of the myocardium, without any fresh occlusion. In some cases the coronary arteries are not severely narrowed. Coronary occlusion almost invariably occurs spontaneously, whereas coronary insufficiency may take place either spontaneously or as a result of conditions which suddenly increase the work of the heart, diminish coronary flow, or reduce the oxygen-carrying capacity of the

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Beatrice E. Field, A.B., assisted in the preparation of this paper.

From the Cardiographic Department, the Mount Sinai Hospital.

Read before the Section on Internal Medicine at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] Master, A. M.; Jaffe, H. L., and Dack, S.: Treatment and Immediate Prognosis of Coronary Artery Thrombosis; 267 Attacks, Am. Heart J. **12:** 549, 1936.

[2] (*a*) White, P. D.: A New Record in Longevity After Coronary Thrombosis, J. A. M. A. **108:** 1796 (May 22) 1937. (*b*) Palmer, J. H.: Prognosis Following Coronary Thrombosis with Special Reference to Influence of Hypertension and Cardiac Enlargement, Quart. J. Med. **6:** 49, 1937. (*c*) Drake, E. H.: Long Survival Following Coronary Thrombosis, Am. Heart J. **20:** 634, 1940. (*d*) Master, A. M., and Dack, S.: Rehabilitation Following Acute Coronary Artery Occlusion, J. A. M. A. **115:** 828 (Sept. 7) 1940. (*e*) Bland, E. F., and White, P. D.: Coronary Thrombosis (with Myocardial Infarction): 10 Years Later, ibid. **117:** 1171 (Oct. 4) 1941. (*f*) Master, A. M.; Dack, S., and Jaffe, H. L.: Follow-Up Studies in Coronary Artery Occlusion: Degree of Recovery, Symptoms, and Physical Signs, New York J. Med. **42:** 413, 1942. (*g*) Levine, E. B., and Phillips, E.: Coronary Occlusion in Industry: A Study of 84 Cases with Reference to Subsequent Employability, Am. Heart J. **29:** 588, 1945. (*h*) Penner, S. L., and Peters, M.: Longevity with Ventricular Aneurysms, New England J. Med. **234:** 523, 1946.

[3] White.[2a] Palmer.[2c] *Penner.*[2h]

[4] (*a*) Büchner, F.; Weber, A., and Haager, B.: Koronarinfarkt und Koronarinsuffizienz in vergleichender elektrokardiographischen und morphologischen Untersuchung, Leipzig, Georg Thieme, 1935. (*b*) Master, A. M., and Jaffe, H. L.: Coronary Insufficiency and Myocardial Necrosis Due to Acute Hemorrhage, J. Mt. Sinai Hosp. **7:** 26, 1940. (*c*) Master, A. M.; Jaffe, H. L.; Dack, S., and Grishman, A.: Coronary Occlusion, Coronary Insufficiency, and Angina Pectoris: A Clinical and Post-Mortem Study, Am. Heart J. **27:** 803, 1944. (*d*) Master, A. M.; Dack, S.; Grishman, A.; Field, L. E., and Horn, H.: Acute Coronary Insufficiency: An Entity; Shock, Hemorrhage Embolism as Factors in Its Production, J. Mt. Sinai Hosp. **14:** 8, 1947.

blood.[5] The commonest causes are effort, exertion, trauma, acute hemorrhage (particularly of the gastrointestinal tract), shock, operation, tachycardia, aortic stenosis, and excessive administration of insulin. Coronary insufficiency may cause only myocardial ischemia or, if it is severe enough, it produces focal necrosis of the subendocardial region, instead of the through-and-through infarction from endocardium to pericardium associated with coronary occlusion which completely obstructs the artery.

Attacks of coronary insufficiency are usually more severe than angina pectoris and milder than coronary occlusion. Coronary insufficiency can be differentiated from occlusion by means of the electrocardiogram in 95% of the cases. In coronary occlusion there are deep Q waves and RS-T elevation that is gradually replaced by persistent T wave inversion.[4c] In coronary insufficiency T wave changes and RS-T depression usually appear early and return to normal in several days or weeks. These electrocardiographic differences arise from the fact that in coronary insufficiency only the subendocardial region is usually involved. (Occasionally coronary occlusion produces the electrocardiographic pattern usually associated with coronary insufficiency. This holds particularly when the infarct involves the true posterior surface of the left ventricle; what is ordinarily termed "posterior" infarction is actually diaphragmatic.[5b])

Energetic and prompt treatment of the conditions precipitating acute coronary insufficiency usually overcomes the latter. Although death may occur suddenly as a result of the coronary insufficiency, the spontaneous attack usually subsides, since the myocardial necrosis is not extensive, and the patient recovers. However, some of these patients have severe coronary disease and continue to experience frequent anginal pain. In this report we shall consider in detail the group which has recovered completely.

Not infrequently a spontaneous episode of coronary insufficiency is the precursor of a coronary thrombosis which may develop in several days or weeks.[6] These cases have been included in the series of coronary occlusion.

MATERIAL

During the past 25 years we have personally observed 554 patients during or after an attack of coronary occlusion. Seventy-nine of the patients with coronary occlusion were seen only during the acute attack. (Thirty-five of these 79 patients died during the acute attack. Most of them were severely ill and were seen only once in consultation.) In 63, a satisfactory follow-up was not possible. Thus, in this study, the course following coronary occlusion was studied in 412 patients. In addition, 141 patients were investigated after acute coronary insufficiency. The average duration of the follow-up study was 6.5 years, the range being from 3 months, in a few cases, to 29 years, in one case. The average age of onset of the attack was 54 years. There were 345 men and 67 women, a ratio of 5 to 1. Eighty per cent of th 412 studied were seen in private practice; the remainder were ward patients.

PROCEDURE

Coronary Occlusion.—In determining the degree of functional recovery, the 412 patients were divided into four groups according to symptoms:

1. Those who did not experience anginal pain, dyspnea, or severe weakness. The majority of these patients felt very well and resumed their previous occupations, or engaged in simila work. It was not necessary for their activity to be restricted however, *in some cases curtailment was imposed by the* patien himself or on the advice of a physician merely because of th *previous occurrence of coronary* occlusion.

2. Those who experienced mild or infrequent anginal pain o exertion or emotion, but whose activities were only slightly restricted. Many of these patients were working, although a number complained of some weakness and of slight dyspnea o exertion.

3. Those who experienced severe or frequent angina, not onl on exertion, but sometimes at rest. They were quite weak. Som complained of moderate dyspnea on exertion. Their activit was definitely restricted, although a few could perform ligh work.

4. Those who had definite symptoms of congestive failure, o an intractable anginal syndrome. Their activities were markedl or completely restricted, although two of this group worked a executives.

In addition to this primary classification on the basi of symptoms, the patients were further divided into fou groups (A, B, C, D) according to the objective finding disclosed by physical examination, blood pressure reading, fluoroscopy, x-ray, and electrocardiogram. Six che leads were taken in the majority of cases; in many th unipolar extremity leads were also recorded. A "tw step" exercise electrocardiogram and a ballistocardi gram were recorded in a small number of the patient but the results of these two tests were not considere when the patients were secondarily placed into the fo lowing classifications:

A. Those in whom the physical examination of the hea the blood pressure, fluoroscopy and x-ray, and the electrocardi gram were *normal, or practically so.* In some electrocardiogra for example, there were small narrow Q waves, particularly leads 2, 3, and V_F, somewhat low T waves in the standard lea or small R waves in leads V_1, V_2 and V_3. On x-ray examinati some of these patients showed fullness or rounding of the low left border of the heart; this may have indicated minimal hyp trophy of the left ventricle.

B. Those in whom there were mild or moderate abnorma *ities in the* electrocardiogram and/or in the size of the hear In some cases the changes in the electrocardiogram were min mal; for example, a Q wave in A-V_F, or in one chest position. four patients, the electrocardiogram was normal.

C. Those in whom there was a marked enlargement of t heart, usually with reversal of pulsation, and/or advanc changes in the electrocardiogram. In many of the patients in th group, a definite diagnosis of ventricular aneurysm could made.

D. Those in whom there was definite evidence of congesti failure.

Since the patients were divided into four groups on th basis of both subjective and objective findings, they fa into 16 separate subgroups, ranging from 1A to 4 (Table 1). For example, Group 1A includes *those* wh made a complete functional recovery, and who showe normal findings electrocardiographically and roentgen logically. Group 3C includes those who made a poor functional recovery, and who showed marked enlargement of the heart, probably paradoxical pulsation, and advanced electrocardiographic changes.

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[5] Footnotes 4b, 4c, and 4d. (*a*) Master, A. M.; Dack, S., and Jaffe, H. L.: Activities Associated with the Onset of Acute Coronary Artery Occlusion, Am. Heart J. **18**: 434, 1939. (*b*) Master, A. M., and Jaffe, H. L.: Factors in Onset of Coronary Occlusion and Coronary Insufficiency: Effort, Occupation, Trauma, and Emotion, J. A. M. A., to be published.

[6] Jaffe, H. L.: Electrocardiographic Changes of Coronary Insufficiency During the Formative Stage of Coronary Occlusion, with Note on Posterior Location of Anginal Pain, J. Mt. Sinai Hosp. **16**: 404, 1950.

RESULTS

Findings in Coronary Occlusion.—Of the 412 patients, 297 are alive and 115 are dead; the mortality rate was 28% (Table 1). Four are known to have died of extracardiac causes. It will be seen (Tables 1 and 2) that 154 patients (37.5% of the 412 patients followed) have made a complete functional recovery (Groups 1A, 1B, 1C). Many of the patients who recovered completely were free of symptoms, except for a short period of anxiety and weakness, after the acute attack had subsided. Of the others who survived, 115 (28% of all the patients) made a satisfactory recovery but experienced occasional angina on effort (Group 2).

TABLE 1.—*Follow-Up in 412 Patients with Coronary Occlusion*

Group	Living	Dead
1A	26	2
1B	102	20
1C	26	4
	154	26
2A	9	0
2B	84	29
2C	21	25
2D	1	0
	115	54
3B	7	5
3C	9	12
3D	2	0
4B	1	3
4C	2	5
4D	7	10
	28	35
Total	297	115

Of the 154 who had made a complete functional recovery, 26 had hearts of normal size and normal electrocardiograms (Group 1A), 102 had some enlargement of the heart or an abnormal electrocardiogram (Group 1B), and 26 had marked enlargement of the heart or advanced changes in the electrocardiogram (Group 1C). Although the patients in this latter group were asymptomatic, 10 of the 26 presented definite evidence of ventricular aneurysm; i. e., a bulge in the ventricular shadow, and large Q waves and persistent RS-T elevation in the electrocardiograms. In two patients with a large heart, the electrocardiogram was interpreted as being within normal limits.

Thirty-eight (25%) of the 154 survivors, who made a complete functional recovery (Group 1—A, B, C), have lived more than 10 years since the attack, and 61 (40%) have lived more than 5 years (Table 2). The length of survival was slightly greater in Group 1A than in Groups 1B and 1C.

The average age of onset of the coronary occlusion in those who had made a complete functional recovery was 52 years; the youngest patient was 26, the oldest 77. Forty of the 154 patients were obese, and only three had diabetes. Following the occlusion, 19 had a systolic pressure of 170 or more, or a diastolic pressure of 100 or more. Seventy-five patients had an anterior infarction and 74 a posterior infarction. The heart was normal in size in 75% of the patients, and the electrocardiogram was normal in 20%. Reversal of pulsation occurred in 18%. The "two-step" exercise electrocardiogram was positive in 11 patients, and negative in 23. The ballistocardiogram was abnormal in 18 patients. normal in 6, and borderline in 1.

TABLE 2.—*Complete Recovery in Coronary Occlusion: Group 1 (A, B, C) Living and Dead (180 Cases or 44% of Total Series)*

Living	154
Dead	26
Mortality Rate	19%
Living	
After 10 yr	38 (25%)
After 5 yr	61 (40%)
Dead	
Lived over 10 yr	12 (46%)
Lived over 5 yr	18 (77%)
Lived under 5 yr	6 (23%)

It was possible to learn of the activities of 128 of the 154 patients who had made a complete functional recovery. Seventy-seven (60%) were working full-time, at their original job or professions (Table 3). (This was particularly true of physicians.) Thirty-one (23%) were doing moderate or part-time work, and 20 (17%) were not working. At least half of the latter group could have worked had it been necessary for them to do so. All the patients in Group 1A were working, and practically all were doing full-time work. It is notable that many of the patients in Group 1C were also working full-time, and only a small minority were not working at all. The list of occupations was very varied and included executives and business men, judges, lawyers, doctors, storekeepers, clerks, salesmen, plumbers, electricians, tailors, and waiters. Because the majority of the patients were seen in private practice, there were few laborers. One patient resumed his job as cable splicer in three months.

TABLE 3.—*Extent of Work Following Coronary Occlusion*

Group	Full Time	Part Time	No Work
1A	20	2	0
1B	49	19	16
1C	8	10	4
	77 (60%)	31 (23%)	20 (17%)
2A	3	1	4
2B	25	22	27
2C	1	7	6
	29 (30%)	30 (30%)	37 (40%)
3B	0	1	1
3C	0	3	4
3D	0	5	5
4B	0	0	1
4C	0	0	3
4D	0	2	3

In four patients who had made a complete functional recovery a second coronary occlusion developed after a number of years. Seven experienced episodes of acute coronary insufficiency. In each instance the patient again became free of symptoms after the acute attack had passed.

In addition to the 154 living patients who have made a complete functional recovery, 26 others had made a complete recovery but subsequently died of another occlusion or of acute coronary insufficiency (Table 1).

Thus, the mortality rate in Group 1 (A, B, C) was only 14.4%; it was 28% in all the cases followed, and 38.5% in Groups 2, 3, and 4 (Table 4). The mortality rate was almost as low in Group 1C (those with functional recovery, but with marked electrocardiographic changes and/or cardiac enlargement) as in Group 1A. It is important to note that, of the 26 patients who recovered completely (Group 1) and later died, 12 (46%) survived for more than 10 years, and 18 (77%) for more than five years. Only six patients (23%) in this group lived for less than five years after the attack (Table 2).

Since the prognosis following coronary occlusion is said to be better in young persons, we studied separately those patients whose attacks occurred before the age of 45. There were 48 such patients, including one 35-year-old woman, in whom there was no history of hypertension, diabetes, or gallbladder disease. The mortality rate among these younger patients was lower (23%), the incidence of complete functional recovery was higher (42%), and the period of survival was longer, than among the older age group, which consisted of 364 patients whose attacks occurred after age 45, in which the mortality rate was 28.5%, and the complete functional recovery was 37%. Twenty-three patients under 45 made a complete functional recovery, and three died.

TABLE 4.—*Mortality Following Coronary Occlusion*

	Patients		Mortality Rate
	Living	Dead	
Total	297	115	28.0%
Group 1	154	26	14.4%
Groups 2, 3, 4	143	89	38.5%

TABLE 5.—*Follow-Up in 141 Patients with Coronary Insufficiency*

Group	Living	Dead
1A	52	1
1B	21	2
2A	22	3
2B	26	5
2C	1	0
2D	2	0
3A	1	0
3C	1	0
4A	0	1
4C	1	0
4D	1	1
Total	128	13 (9%)

Findings in Coronary Insufficiency.—One hundred forty-seven patients with acute coronary insufficiency were observed. In approximately 60% the attack occurred spontaneously. In the rest, the attack was associated with acute gastric hemorrhage, effort, excitement, operation, tachycardia, acute gastroenteritis, or pulmonary infection. Six patients died during the acute attack. One hundred forty-one have been followed for from 6 months to 20 years; of these, 128 are alive, and 13 have died—a mortality rate of 9% (Table 5). This rate is one-third of that found in the patients with coronary occlusion. In 80 patients (57%) the heart was normal in size, and the electrocardiogram was normal (Groups 1A, 2A, and 3A). In the patients with coronary occlusion, the percentage with such normal findings was only 9.

Seventy-three (52%) of the coronary insufficiency patients made a complete functional recovery (Groups 1A and 1B). Sixteen (22%) of these have lived for more than 10 years after the episode, and 23 (31%) for more than 5 years. In 71% of the patients the size of the heart and the electrocardiogram findings were normal. The two-step exercise electrocardiogram was positive in six patients and negative in eight. The ballistocardiogram was positive in four patients and negative in the same number. In four patients a coronary occlusion developed later, and two others experienced another episode of coronary insufficiency from which they again recovered completely.

Among the patients who died subsequently three had made a complete functional recovery, one for 15 years and two for 1 year.

Fourteen of the patients had the attack of acute coronary insufficiency before they were 45 years old. All of them made a complete recovery. In only one did an abnormal electrocardiogram persist.

COMMENT

It is apparent that the prognosis in patients who survive an attack of coronary occlusion is much better than has generally been expected. In our series, almost two-fifths of the patients have made a complete functional recovery, and one-fourth of these have already lived for more than 10 years. In addition, a fair proportion of the patients (6.5%) made a complete functional recovery and lived for many years before dying of another acute attack of coronary occlusion or insufficiency. In fact, of the 180 who had recovered completely from the acute attack, less than 20% have died; only six patients died in less than five years. Our results indicate that a patient who makes a complete recovery from coronary occlusion has a 95% chance of living for more than 5 years, and a good chance of surviving for more than 10 years. Nevertheless, another occlusion or episode of acute coronary insufficiency may develop after many years.

The majority of our patients were seen in private practice. Therefore, our findings apply particularly to persons in the upper economic strata. In such patients coronary attacks are recognized earlier and treated with more care than in those in the lower economic group. However, a comparison of the findings in the ward and private practice patients demonstrated similar trends in both groups, and we believe that our findings hold for all classes of patients.

Of particular interest were the 26 patients who had made a complete functional recovery, and yet presented enlargement of the heart and advanced changes in the electrocardiogram (Group 1C). A definite ventricular aneurysm was present in 10; in the remainder there was usually paradoxical pulsation. The benign course of ventricular aneurysm in many patients is well known, and is borne out in our patients, many of whom lived more than 10 years and have been working. One of them, a physician, is quite well after 29 years. Only four patients in this group have died. The best prognostic guide following coronary occlusion appears to be the patient's symptoms, i. e., anginal pain or dyspnea, rather than the size of the heart or the electrocardiogram.

A significant number of the remaining patients were idle voluntarily, because they thought that this was the proper course to pursue following coronary occlusion. Most of those who worked did full-time work at their previous jobs or professions or were engaged in somewhat similar work. It is true, of course, that many of them restricted their activities to some extent, or reduced the number of working hours, often on the advice of their physicians. For example, some physicians abandoned private practice, and took positions in industry or in teaching institutions.

From our findings it is clear that many persons who recover from a coronary occlusion are capable of resuming their places in all the various phases of industry. Many can perform their usual work, as do persons without coronary disease; others may have to find different work or to modify the work, as may be necessary. Periodic physical examinations of these patients, especially, should be made. In general, it is a good policy not to assign persons with coronary disease to jobs in which the sudden occurrence of anginal pain will endanger the lives of other persons.

Instead of discouraging patients who have recovered from a coronary occlusion from working, the physician should encourage them to resume some form of work as soon as this is physically possible. Most patients who make a complete functional recovery are able to return to work within three to six months after the attack; not infrequently they have done so before three months have elapsed. Psychologically, it is essential for these persons to be employed, because after a heart attack they usually develop considerable anxiety concerning their state of health. At times this becomes very serious and is far more damaging than is the cardiac disease itself. This state of mind may exist even in those who have made a complete functional recovery. Idleness merely exaggerates this tendency to anxiety and self-pity, whereas gainful employment serves to restore the patient's mental well-being. It is not uncommon to find that atypical chest pains and other symptoms disappear when these patients go back to work.

In considering the outlook following coronary occlusion, it is important to remember that the initial attack usually occurs after the age of 50; therefore, if a patient survives for more than 5 or 10 years, he will have approached his normal life span; and, since most survivors are able to work, relatively few working years will have been lost.

In our series, the patients in whom coronary occlusion developed before the age of 45 fared better than did those in the older age group, but the difference was less striking than had been expected.

The location of the infarct, whether anterior or posterior, did not play a role in the subsequent course of the life of the patients. The statement is not infrequently made, based merely on a clinical impression, that posterior infarction has a better prognosis during and following the acute attack. This opinion is not borne out in our series.

The patients who made a complete functional recovery following coronary occlusion not infrequently had a normal two-step exercise electrocardiogram, but usually had an abnormal ballistocardiogram. It must be remembered, however, that the ballistocardiogram is frequently abnormal in older persons without any evidence of heart disease. Therefore, the record must be evaluated with great care. The two tests often were not correlated. Following 100 attacks of coronary occlusion, Moser and his co-workers [7] found the ballistocardiogram normal in 20% of the patients. These patients had made a good functional recovery. We have occasionally encountered a normal test even in patients with ventricular aneurysm. An abnormal exercise electrocardiogram or ballistocardiogram may be the only objective evidence of coronary disease, or of a previous coronary occlusion.

As was to be expected, the patients with acute coronary insufficiency fared better than did those with coronary occlusion. More than half of these patients made a complete functional recovery, and over 95% of them are still living. The recognition of coronary insufficiency as an entity became common much later than did that of coronary occlusion; therefore, the follow-up period of patients who suffered from the former has been shorter than that of patients with coronary occlusion. Our findings suggest, however, that survival after an attack of coronary insufficiency is longer than that after coronary occlusion. Following complete recovery from coronary insufficiency, the heart size and electrocardiogram are normal in three-fifths of the patients.

The results of this follow-up study are of significance to the doctor, the patient and his family, and to industry. Coronary disease is the most frequent heart affection and the most important cause of illness; and it will continue to increase as a result of the lengthening life span and the greater numbers of middle-aged and old people in the population. Furthermore, a large number of persons who sustain a coronary occlusion are in the most active and productive period of their lives.

The general attitude to be adopted toward the future conduct of those who have survived an acute coronary occlusion or insufficiency constitutes a major economic and psychological problem of our time. In the past, the pessimism of both the physician and the lay person has led to a great deal of psychological and economic invalidism. This approach is no longer advisable. In view of the data which we now have, both the doctor and the patient may honestly confront coronary occlusion, before and after the attack, optimistically and positively. It should be emphasized that most patients survive the acute attack, and that many make a complete functional recovery and are able to resume gainful employment and approximate their normal life span. They should be encouraged to lead as normal lives as possible, avoiding excessive mental and physical strain. In this way we shall send many more patients back to a happy life rather than into the exile of invalidism and despondency.

CONCLUSIONS

A study has been made of the progress of 412 patients after acute coronary occlusion and 141 patients after acute coronary insufficiency. The patients were divided into groups on the basis of symptoms and activity and according to the objective findings.

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[7] Moser, M.; Pordy, L.; Chesky, K.; Taymor, R. C., and Master, A. M.: The Ballistocardiogram in Myocardial Infarction: A Study of 100 Cases, unpublished data.

About two-fifths of the patients with coronary occlusion have made a complete recovery. Another quarter of the patients made a satisfactory recovery, but experienced occasional angina with effort.

Twenty-five per cent of the patients who recovered completely have lived more than 10 years and 40% more than 5 years. Eighty-three per cent are employed, 60% at full-time work. Only three patients had diabetes; obesity was not common. Whether the infarct had been anterior or posterior did not influence the future course of the patient.

In 26 patients the size and pulsations of the heart and the electrocardiogram were normal. In some of these the two-step exercise electrocardiogram and ballistocardiogram were abnormal.

Twenty-six patients had recovered complete function although the heart was greatly enlarged and/or the electrocardiogram was very abnormal. In 10 patients definite evidence of ventricular aneurysm was present; one of these patients is well 29 years after the attack. Following coronary occlusion, the best prognostic guide appears to be the patient's symptoms rather than the objective findings.

Twenty-six additional patients made a complete functional recovery but died subsequently, the great majority after 5 or 10 years. Of all the patients who made a complete functional recovery, only six (3%) died in less than five years. The mortality rate in patients who made complete recovery was less than half that found in thos who continued to have symptoms.

Coronary occlusion or insufficiency may recur afte many years of complete functional recovery. Such incidents occurred in 11 patients who again recovered completely.

Patients in whom the attack occurred before the ag of 45 did only slightly better than did the older patient as determined by the number who made complete recoveries and by the mortality rate.

The prognosis following acute coronary insufficienc was even better than that after coronary occlusion. Ov half the former patients made a complete recovery an only 4% of them have died.

Following coronary insufficiency the size of the hea and the electrocardiogram are normal in three-fifths the patients.

The majority of patients who survive an attack coronary occlusion or insufficiency are able to lead fair normal lives and to be gainfully employed. They shou be encouraged to do so as soon as it is physically po sible. In this way it will be possible to avoid much the psychological and physical invalidism which no exists.

125 E. 72nd. St. (Dr. Master).

OPERATION FOR CORONARY ARTERY DISEASE

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Operation for coronary artery disease was developed on dogs by Drs. Eugene Stanton, William Batiuchok, Eugene Leiter, Maurice Kim, and the authors of this paper.[1] The developmental problems in the surgical technique, however, will not be discussed in this paper. This operation introduces new problems in the physiology of circulation in the heart, and the answers to some of these problems cannot be given at the present time. The operation is giving fresh impetus to the study of circulation in the heart.

DESCRIPTION OF OPERATION

The operation is done in two stages. The first stage consists in the placement of a free vein graft between the coronary sinus and the aorta. The second stage of the operation consists of partial ligation of the coronary sinus at the ostium of the sinus into the right auricle. The purpose of the operation is to deliver oxygenated blo into the myocardium. We have evidence to show th oxygenated blood delivered into the venous system the heart can protect the heart against occlusion of major coronary artery.

The graft is taken from the basilic, cephalic or jug lar vein either immediately before or on the afterno before operation. The patient is placed on the right sid An intercostal incision is made between the left seven and eighth ribs. The pericardium is opened. Two piec of polyacrylonitrile fiber ("orlon") are placed aroun the coronary sinus at a point where the sinus enters th right auricle. Polyacrylonitrile fiber is used because maintains its tensile strength after having been in the bod several weeks. These polyacrylonitrile threads are tucke away between the pericardium and heart to be used the second stage of the operation. A special clamp placed on the coronary sinus, and the sinus is opene about 5 mm. One end of the vein graft is sutured to th sinus, and the clamp is removed from the sinus. A sit for tapping the aorta is selected, and a special clamp applied to the aorta. The aorta is opened approximatel 4.5 to 5.0 mm. The free end of the vein graft is suture to the aorta. The clamp is removed from the aorta. Th pericardium is closed by sutures. The chest wall is closed The first stage of the operation can be done in approximately two and one-half hours.

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[1] (*a*) Beck, C. S.; Stanton, E.; Batiuchok, W., and Leiter, E.: Revascularization of Heart by Graft of Systemic Artery into Coronary Sinus, J. A. M. A. **137**: 436 (May 29) 1948. (*b*) Beck, C. S.: Revascularization of the Heart, Ann. Surg. **128**: 854 (Oct.) 1948. (*c*) Beck, C. S.: Revascularization of the Heart, Surgery **26**: 82 (July) 1949. (*d*) McAllister, F. F.; Leighninger, D., and Beck, C. S.: Revascularization of the Heart by Vein Graft From Aorta to Coronary Sinus, Ann. Surg. **133**: 153 (Feb.) 1951.

The second stage of the operation is done three weeks after the first stage. The scar of the first stage is incised, and the chest is opened. The pericardium is opened. The polyacrylonitrile threads are picked up and freed to the point where they encircle the sinus. A probe measuring 2 mm. in diameter is placed on the sinus, and the polyacrylonitrile thread is tied on the probe. The probe is removed. This produces partial occlusion of the sinus. The pericardium is closed. The chest wall is closed. The second stage of the operation can be done in one and one-half hours.

OBSERVATIONS AT OPERATION

The first stage of the operation provides a fistula from the aorta through the graft and into the coronary sinus. Most of the blood escapes into the right auricle. The flow is rapid as in an arteriovenous fistula elsewhere. A thrill is palpable over the graft. In several patients with coronary artery disease pink blood could be seen in the veins on the posterior aspect of the heart at the first stage of the operation. This pinkening of the venous system became more marked if the sinus were occluded temporarily by the polyacrylonitrile threads. This observation was not made in normal dogs with normal coronary artery inflow. The explanation for this is not given, but the suggestion is made that in patients the pressure in the venous system of the heart might be reduced by the coronary artery inflow disease. A reduced pressure in the venous system should encourage retrograde flow from the coronary sinus into its venous tributaries. The presence of coronary artery disease, therefore, is favorable to retrograde flow in the veins and in this respect to the success of the operation in patients.

TESTS OF BENEFIT FROM OPERATION

Before this operation was applied to patients with coronary artery disease, it was necessary to test the benefit on dogs provided by operation. The test worked out by Beck and his associates in the 1932 to 1942 period consisted of ligating the descending ramus of the left coronary artery at its origin in one step. The artery was dissected. No branches were missed. Aseptic technique was used, and the delayed deaths occurring weeks later were included. Among normal dogs the mortality rate from this ligation was 70%, and the recovery rate was 30%. All dogs that lived after ligation of the artery showed a definite infarct in the heart. In most specimens the infarct was large. Mortality and infarction provided a basis on which benefit could be determined.

The test was applied to 37 dogs in which arterial blood was directed into the coronary sinus and in which the coronary sinus was either completely or partially ligated at its ostium in the right auricle. The source of the arterial blood was either from the carotid artery or from the aorta by way of the vein graft. In this group of 37 dogs, 33 lived and 4 died after ligation of the test artery.[2]

For comparison the test ligation was done in 10 dogs in which the graft was occluded by thrombosis. These experiments were identical to the others except that the graft was not patent. Seven dogs died and three recovered. This is the same mortality rate as occurred in our series of normal control dogs. In this series the mortality was 70% and the recovery rate 30%.[3] On the basis of 37 control dogs, there would have been 11 that lived and 26 that died after ligation of the test artery.

The destruction of heart muscle was equally significant. The infarcts in the control group were always definite and frequently extensive, involving the entire thickness of the ventricular wall. A gross infarct was present in every specimen in the control group. Among the dogs with patent graft a gross infarct was absent in over half the specimens. In most of the other specimens the amount of destruction was limited to rather small areas. It was also possible to make these ligations without significant changes in the electrocardiogram.[4]

According to these experiments, the operation protects the dog against death and destruction of heart muscle after ligation of the descending ramus of the left coronary artery. Protection against death and infarction are the two factors on which this operation is based. It seems reasonable to assume that oxygenated blood must enter the capillary bed of the myocardium where oxygen exchange is possible. If this does not occur, how could this protection be explained? This is only indirect evidence that blood enters the capillary bed, but it appears to be the only assumption that can be made.

It might be stated that additional coronary arteries were ligated, and the dogs were active and appeared in good health.[2] In two dogs all coronary arteries were occluded except the septal branch. In one dog all coronary arteries were occluded except the circumflex artery, which was occluded to a lumen of 1.5 mm. We did one experiment in which all coronary arteries were occluded, and the heart kept beating for 35 minutes. There was considerable mortality in accomplishing these extensive occlusions, but the fact remains that it was possible to make them. In our opinion such occlusions as these are not possible in the normal unprotected heart.

Additional evidence that blood flows in a retrograde direction and probably through the capillary bed is given by the following experiment, which was repeated in several cases. The circumflex artery is dissected free, and the proximal end is ligated in a dog in which both stages of the operation have been done previously. The flow from the distal end of the severed artery is observed. When the graft from the aorta to the coronary sinus is clamped off, this blood from the severed artery is red and flows in small amount. It is arterial blood which, no doubt, enters the circumflex artery from other coronary arteries by way of intercoronary channels. When the graft is open so that red blood enters the sinus from the aorta, the retrograde flow from the severed circumflex artery is blue. It flows in large amount and can build up a higher pressure. This observation was first made by one of us (R. S. H.) in our laboratory. The retrograde flow is augmented because of aortic inflow from the graft. It is blue because the oxygen has been taken out, and in order for this to occur, it must have traversed a capillary bed where oxygen exchange is possible. We believe that this is strong evidence, together with the protection against mortality and infarction, that red blood can traverse the capillary bed in a retrograde direction where it is beneficial. Along with this increased retrograde flow from the graft, there is some electrocardiographic evidence of improvement when the graft is open.[5]

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[2] Hahn, R. S., and Beck, C. S.: Revascularization of the Heart: A Study of Mortality and Infarction Following Multiple Coronary Artery Ligation, to be published.

[3] (*a*) Stanton, E. J.; Schildt, P., and Beck, C. S.: The Effect of Abrasion of the Surface of the Heart Upon Intercoronary Communications, Am. Heart J. **22**:529 (Oct.) 1941. (*b*) Beck, C. S., and Mako, A. E.: Venous Stasis in the Coronary Circulation: An Experimental Study, Am. Heart J. **21**:767 (June) 1941. (*c*) Schildt, P.; Stanton, E., and Beck, C. S.: Communications Between the Coronary Arteries Produced by the Application of Inflammatory Agents to the Surface of the Heart, Ann. Surg. **118**:34 (July) 1943.

[4] Leiter, E.: The Electrocardiogram Following Anastomosis of Carotid Artery to Coronary Sinus, Am. Heart J. **39**:125 (Jan.) 1950.

SIDE EFFECTS OF OPERATION

The operation involves an arteriovenous fistula by leaving the ostium of the coronary sinus partially open. In our experiments the sinus was reduced to a lumen of approximately 3.0 to 3.5 mm. In patients with coronary artery disease the lumen was reduced to about 2 mm. A considerable quantity of blood can flow through such an opening, but it would appear that the flow is not great enough to produce clinical manifestations of a fistula, except a murmur. This aspect of the operation will bear further observation. One might expect the development of an extensive drainage by way of the anterior cardiac veins and the middle cardiac vein. The anterior cardiac veins enter directly into the right auricle.[6] The middle cardiac vein enters the coronary sinus between the polyacrylonitrile fiber ligature and the auricle so that it is not partially occluded. In some specimens this vein enters directly into the right auricle. Our observations on venous drainage are based on the experimental work. We expected to find large drainage channels. In general, these drainage channels did not appear to become an important run-off for blood. Our experience to date is that the arteriovenous fistula effect has not been a problem, but it remains a subject for study in patients.

There were three complications which could have prevented the satisfactory outcome of the operation. These were (1) hemorrhage into the heart muscle, (2) thrombosis in the graft, and (3) intimal thickening of the veins of the heart. All three of these complications were solved in the same way, namely, by making the operation into a two-stage procedure and by providing an exit for blood by only partially occluding the coronary sinus.[1d] A stagnant flow of blood must be avoided. The flow through the graft and veins must be active. The walls of the veins thicken after they are exposed to the increased pressure produced by the first procedure of the operation, and the veins tolerate the pressure satisfactorily when the pressure is further increased by the second procedure. After the veins have been exposed to the pressure of arterial inflow, they take on the appearance of the arteries.[7]

APPLICATION TO PATIENTS WITH CORONARY ARTERY DISEASE

This aspect of the work is divided into an early and a late period. In the early period, dating approximatel from January, 1948, to December, 1950, only patient who were entirely or almost entirely incapacitated from work were accepted for operation. These patients ha extensive and irreversible damage in the heart. No doub most of them were poor risks for any operation, and indeed, the damage in the heart muscle in some of thes patients was such as to make questionable the degree o benefit that might have taken place if the patient ha recovered from the operation. In this group of 12 patient there were eight deaths and four recoveries. Anothe factor in the mortality in this group, aside from extensive disease, was the technical aspects of the operation Regardless of experimental background, the operatio on patients had still to be developed. There were problems which had to be solved, and experience was necessary for their solution.

In addition to the mortality in this group of advance cases,[8] there were several additional deaths. One patien died in the hospital while preoperative studies were bein carried out; no operation was done. Several patients die during the few days it took to have them admitted to th hospital. One patient died during a test anesthetic procedure without operation. It is obvious that the patient whom we accepted for operation had severe disease They were not good candidates for operation. The ris was great, and if the patient survived the operation, th amount of damage already in the heart probably coul impair the clinical result. Concerning this aspect of th problem, an important contribution was made by Dr George Geckeler and Charles Bailey, of Philadelphi They urge that we accept stronger patients for operatio and refuse to accept patients who are severely incapac tated. They pointed out that it probably would not possible to establish this operation if we accepted ba risk patients. In this event, it would not be possible give to the better-risk group of patients with corona artery disease the potential benefit that the operatio carries. Therefore, we decided not to accept for operatio patients who were (1) totally incapacitated, (2) had a enlarged heart, (3) had heart failure, (4) had sever disease in the aorta, or (5) had a systolic blood pressur higher than 160 mm. of mercury. The record improved We deviated from this program after we had a record o one death out of 19 patients operated on and accepte several patients who were incapacitated. We learne again that such patients are not satisfactory candidate for the operation.

REPORT OF CASES

Case 1.—G. P. a man, 51, was operated on Jan. 31, 1951. The posterior aspect of the left ventricle showed an infarct 4 to 5 cm. in diameter. The common left coronary artery was palpable. The descending and circumflex arteries were palpable. These arteries felt as though they were calcified. Because of the extensive disease in the heart, he was classified as a "bad risk patient." The graft was placed between the coronary sinus and the aorta without difficulty. Blood pressure was well maintained. Two polyacrylonitrile threads were placed around the ostium of the sinus. These were not tied. The veins on the posterior surface of the heart became pink when the coronary sinus was temporarily occluded. There was an immediate inflow of red blood into the veins. Operation was again done Feb. 22,

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[5] Hahn, R. S.; Beck, C. S., and Kim, M.: Revascularization of the Heart: Some Studies on the Mechanism of Benefit Following Arterialization of the Coronary Sinus in Dogs, to be published.

[6] McAllister, F. F., and Leighninger, D. S.: Infarction of the Right Ventricle Caused by Multiple Coronary Vein Ligation, Circulation 1:717 (April) 1950.

[7] Hahn, R. S., and Kim, M.: Revascularization of the Heart: Observations on the Histological Modification of the Dog Heart Following Arterialization of the Coronary Sinus, to be published.

[8] The protocols on the early series of cases are omitted from THE JOURNAL because of limitation of space. They will appear in the authors' reprints.

1951. The coronary sinus was partially occluded to a lumen of 2.5 mm. There was a slight pinkening of the veins after this was done. This patient states that he has been completely free of pain and has taken no medicament since operation. He is enthusiastic about the result.

CASE 2.—H. F., a woman, 41, was operated on Jan. 17, 1951. Both major branches of the left coronary artery were palpable and seemed to be calcified. The graft was placed without difficulty. After the anastomosis was completed, a flash of red blood could be seen in the veins with each systole. Temporary occlusion of the sinus pinkened the veins. Operation was done again Feb. 7, 1951. The coronary sinus was ligated at the ostium to about 3 mm. The veins were pink after this was done. The patient went through both operations satisfactorily. She had episodes of heart failure before operation. She reports favorably on the result and claims that since the operation she has had no anginal pain and that her activities have increased.

CASE 3.—G. G., a man, 42, was operated on Jan. 22, 1951. He was placed in the bad-risk group. He had practically no tolerance for exercise and was taking considerable morphine. The graft was placed without difficulty. The veins became pink when the sinus was temporarily occluded. Operation was done again Feb. 19, 1951. The sinus was occluded to a diameter of 2.5 mm. A murmur was heard. It is difficult to evaluate the result in this patient. He thinks he is better, but he is not strong and remains an invalid. Additional time will be necessary before evaluation can be made.

CASE 4.—F. S., a man, 59, was operated on Feb. 1, 1951. The descending and circumflex arteries were palpable and probably calcified. The graft was placed without difficulty. It was patent. Temporary occlusion of the sinus pinkened the veins. It also stopped the heart momentarily. No murmur could be heard after the operation. Exploration was done Feb. 23, 1951. The graft was thrombosed. The surface of the heart and the parietal pericardium were gently abraded, and 0.2 gm. of powdered asbestos was applied to these surfaces. This patient had not worked for eight months. He is now planning to return to work. He has pain in his incision. The result cannot be evaluated yet.

CASE 5.—M. S., a man, 46, was operated on Feb. 13, 1951. The descending and circumflex arteries were easily palpable. The graft was placed without difficulty. A good retrograde flow in the veins occurred when the sinus was temporarily occluded. Not only did the veins become pink, but the heart muscle did also. Operation was done again March 6, 1951. The sinus was occluded to a diameter of 2 mm. There was a flash of pink blood into the veins with each systole. The patient was seen May 18. A murmur was present. This patient returned to work. He states that he has had no pain and has taken no medicament since operation. He is highly pleased with the result.

CASE 6.—R. L., was a man, 43. The first step of the operation was done April 2, 1951. A graft of vein was placed between the coronary sinus and the aorta. The veins became pink when the sinus was temporarily occluded. The second stage was done April 20, 1951. The patient is free of pain and has returned to work. He is enthusiastic about the result.

CASE 7.—J. P., was a man, 44. The first stage of the operation was done May 5, 1951. Small ecchymotic spots appeared in the epicardial fat when the sinus was momentarily occluded. This was probably due to rupture of capillaries, and the observation suggests that the capillaries could not tolerate a high retrograde venous pressure. The second stage was done June 1, 1951. It was interesting that the heart tolerated several tests of complete sinus occlusion. The sinus was occluded to a lumen of 3 mm. The patient tolerated the operation well. This patient has had no pain and has taken no medicament since operation. He has returned to work. He is enthusiastic about the result.

CASE 8.—M. F., a man, 44 was operated on Dec. 11, 1950.[9] An infarct was found on the posterior aspect of the left ventricle. A vein graft was placed between the coronary sinus and the aorta. The second stage of the operation was done January 4, 1951. The sinus was partially occluded. The patient has had no angina since discharge. He returned to work on March 5 and is working full time for the first time since January, 1950. His heart is normal size, and the murmur can easily be heard. His electrocardiogram, while not normal, is better than any during the six months preceding surgery.

CASE 9.—H. F. was a women, 48. In April, 1950, she was hospitalized with anterior and posterior myocardial infarction. Operation was done Dec. 12, 1950. A vein graft was placed between the coronary sinus and the aorta. There was a good thrill and pulsation over the graft. The systolic murmur heard after operation gradually disappeared before the second stage was done on Jan. 5, 1951. At this operation a large amount of clotted blood was found in the chest, and there was evidence of a low-grade infection. The graft was not patent. The coronary sinus was ligated. A report several months after operation stated that the patient has had very little angina and is more active than before operation. She has a grade I murmur, but there has been no recanalization.

CASE 10.—E. T., a woman, 45, was operated on Dec. 12, 1950. The basilic vein was not satisfactory, and a segment of anterior malleolar vein was used. The graft was smaller than usual. When the sinus was temporarily occluded the veins in the heart became pink. The second operation was done Jan. 3, 1951. The graft was thrombosed. There was no murmur. An attempt was made to place another graft between the sinus and the aorta, but we did not succeed in doing this. According to subsequent report, the patient's condition is about the same as before operation.

CASE 11.—C. K. was a man, 58. Operation was attempted Dec. 13, 1950. The patient was almost incapacitated. He had an enlarged heart and a dilated and tortuous aorta. Diffuse infarction was visible in the posterior part of the left ventricle. The descending and circumflex coronary arteries were readily palpable and were calcified. The heart beat was weak; the systolic pressure was 70 mm. of mercury. Despite the use of phenylephrine (neo-synephrine®), the pressure could not be maintained. Ventricular fibrillation developed, and the patient died. This patient was not a satisfactory condidate for operation. Extensive disease was present in the heart and aorta.

CASE 12.—S. A., a man, 40, was operated on Feb. 21, 1951.[10] On the posterior aspect of the left ventricle several small infarcts were observed about 0.5 to 1.0 cm. in diameter. The descending ramus of the left coronary artery was easily palpable and probably calcified. A vein graft from the arm was placed between the coronary sinus and the aorta. The veins became pink when the sinus was temporarily occluded. The second stage was done March 15, 1951. The ostium of the sinus was ligated to a diameter of 2.5 mm. This patient has returned to work. He is almost completely free of pain and takes no medicament. He is pleased with the result.

CASE 13.—R. B. was a man, 36. Clinically he had two infarcts, one anterior and one posterior. Operation was done Feb. 26, 1951. An initial fall in blood pressure delayed the operation 30 minutes. A posterior infarct about 3 cm. was observed. The circumflex artery was easily palpable and was probably calcified. A graft from the cephalic vein was placed between the coronary sinus and the aorta. The veins filled with pink blood when the sinus was temporarily occluded. The second stage was done March 26, 1951. The operation was delayed 45 minutes because of low blood pressure. The sinus was partially ligated to 2 mm. Pink blood was observed in the veins. The patient had severe damage in the heart. He was incapacitated, and the prognosis was bad. Since operation he has been almost completely free of pain and has returned to work. He takes no medicament. He is pleased with the result.

CASE 14.—W. M., a man, 59, was operated on March 5, 1951. A segment of vein was taken from the elbow and placed between the coronary sinus and the aorta. The parietal pericardium was adherent to the heart. These adhesions were separated. The second stage was done March 27, 1951. There was no pulsation in the graft. It was occluded by thrombosis. The sinus was completely ligated, and 0.2 gm. of powdered asbestos was placed between the pericardium and the heart. Several weeks after operation the patient coughed up blood and later had a severe pulmonary hemorrhage. The patient died from the hemorrhage.

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[9] The operations in Cases 8 through 11 were done at Permanente Hospital, Oakland, Calif. Dr. Cecil Cutting and Dr. David DeKruif studied and reported on these cases.

[10] The operations in Cases 12 through 16 were done at the Veterans Administration Hospital, Cleveland. Dr. Harold Schwartz aided us in this study.

Examination showed that the graft had become recanalized and that it ruptured in three areas where it was adherent to the lung. The explanation for this cannot be given. The coronary arteries showed minimal or no disease. Probably the pericarditis was a factor in producing electrocardiographic changes. The graft showed necrosis and inflammation.

Case 15.—J. W., a man, 56, was operated on April 16, 1951. A vein graft was placed between the coronary sinus and the aorta. The veins filled with pink blood when the sinus was temporarily occluded. On May 7, 1951, the sinus was partially occluded. The veins became pink, as also did the myocardium. About four hours after the operation was completed, the systolic blood pressure rose to 200 mm. of mercury and a left hemiplegia was noticed. The patient died the following day. Autopsy showed the graft to be patent. The sinus was partially occluded. The coronary arteries were severely diseased, partially occluded, and calcified. Generalized fibrosis was found in the myocardium. A pituitary adenoma was found. Ischemic necrosis of the right cerebral cortex was found without occlusion of cerebral arteries or the carotid artery. The cardiac end of the stomach showed extensive ischemic necrosis with perforation. This was an acute process probably related to the pituitary tumor. There was some subepicardial hemorrhage in the heart muscle, which probably occurred when the systolic blood pressure rose to 200 mm. of mercury several hours after the operation was completed.

Case 16.—L. F., a man, 42, was operated on April 19, 1951. The blood pressure fell to a critical level. The incision was delayed. The systolic pressure rose to about 90 mm. of mercury, and the chest was opened. The pericardium was opened. A large infarct was seen on the posterior surface of the left ventricle. The heart was not touched. The systolic pressure fell to 60 mm. of mercury, and the beat was weak. The blood pressure did not rise, and it was decided to close the chest and not to proceed with the operation. The patient died the following day. He had severe disease in the heart and was incapacitated. He was not a satisfactory candidate for operation.

Case 17.—J. C., a man, 42, was operated on Jan. 31, 1951.[11] The common left coronary artery could be palpated and was probably calcified. A vein graft was placed between the coronary sinus and the aorta. The patient was improved clinically after this operation. He felt so well that he did not believe the second stage was necessary. The second stage of the operation was done Feb. 28, 1951. The coronary sinus was ligated down to 2.5 mm. Immediately after this was done, the venous oozing from the surface of the heart changed to pink blood. The veins became pink, as also did the heart muscle. A murmur could be heard. This patient has returned to work, has had no pain, and takes no drugs. Recently he walked 4 miles. Before operation he could walk about a city block.

Case 18.—W. C., a man, 44, was operated on Feb. 28, 1951. An infarct was seen on the posterior surface of the left ventricle. It was adherent to the parietal pericardium. The circumflex coronary artery was palpable and was probably calcified. An attempt was made to make an anastomosis between the coronary sinus and the graft of vein. In doing this the sinus was torn. The sinus was ligated. The epicardium and the lining of the parietal pericardium were gently abraded, and 0.2 gm. of powdered asbestos was applied to these surfaces. The patient believes that this pain has been definitely lessened by the operation.

Case 19.—A. A., a man, 38, was operated on March 21, 1951. The descending ramus of the left coronary artery could be palpated and was probably calcified. A graft of vein was placed between the coronary sinus and the aorta. When the ostium of the sinus was temporarily occluded, the veins of the heart became pink. The second stage of the operation was done April 11, 1951. The graft was occluded by a thrombus. The epicardium and parietal pericardium were abraded, and 0.2 gm. of powdered asbestos was applied to these structures. The patient has been discharged from the hospital, but no statement can be made con[illegible]ning the benefit of the operation.

Case 20.—J. T., a man, 42, was operated on March 21, 1951. Areas of infarction were seen on the posterior surface of the left ventricle. The descending ramus of the left coronary artery was easily palpable and was probably calcified. The disease in the heart seemed to be extensive. A graft of vein was placed between the coronary sinus and the aorta. The veins became pink when the sinus was temporarily occluded. The second stage of the operation was done April 11, 1951. The coronary sinus was partially ligated to a lumen of 2 mm. The veins of the heart became pink, as also did the color of the heart. Venous oozing immediately became pink oozing from the surface of the heart. This patient's pain has not completely disappeared, but he states that he feels definitely better. He has some incisional pain. He can walk three city blocks; whereas, before operation approximately one-half block was as far as he could go. Before operation this patient had some acute attacks of coronary insufficiency.

Case 21.—W. K., a man, 39, was operated on April 11, 1951. The systolic blood pressure fell to 80 mm. of mercury as the chest was being opened. The operation was discontinued for a period of time until the pressure rose to a higher level. A large infarct, measuring 5 cm. in diameter, was observed on the posterior aspect of the right ventricle. Small areas of fibrosis were seen elsewhere. Both the descending and circumflex coronary arteries were palpable and probably calcified. A vein graft was placed between the coronary sinus and the aorta. The heart beat was rapid. The operation was completed. The patient died five hours after the operation was completed. This patient had episodes of failure and paroxysmal auricular tachycardia with premature auricular contractions. He had been taking quinidine and digitalis. He was a bad risk, and, as it turned out, he was not a satisfactory candidate for the operation.

Case 22.—S. C., a man, 53, was operated on May 2, 1951. An infarct was present on the posterior aspect of the left ventricle. It appeared to be extensive. He had a bundle-branch block. No attempt was made to place the graft because the sinus lay to the right of the aorta. The anatomical relationship appeared to be such that a patent graft might not be obtained. The surface of the heart and the lining of the parietal pericardium were gently abraded, and 0.2 gm. of powdered asbestos was applied to these surfaces. It is too early to evaluate the result.

Case 23.—M. C., a woman, 53, was operated on May 2, 1951. A graft was placed between the coronary sinus and the aorta. The second stage was done May 30, 1951. The graft was not patent. The epicardium and lining of the parietal pericardium were abraded, and 0.2 gm. of powdered asbestos applied.

Case 24.—W. S., a man, 53, was operated on May 30, 1951. A graft of vein was placed between the coronary sinus and the aorta. The second stage is yet to be done.

Case 25.—A. D., a man, was operated on Jan. 30, 1951.[12] A graft of vein was placed between the coronary sinus and the aorta. The second stage was done March 1, 1951. The graft contained a recent thrombus. The graft was opened, and the thrombus was removed. The incision in the graft was closed by sutures. Blood flowed through the graft from the aorta. The coronary sinus was partially occluded to a diameter of 3 mm. This patient is reported to have shown marked clinical improvement.

Case 26.—A male dentist, 41, was operated on March 1, 1951. An extensive old infarct was found on the posterior surface of the left ventricle. Most of the visible heart muscle showed diffuse fibrosis. Both major branches of the left coronary artery were palpable and probably calcified. There was an initial fall in blood pressure. The graft was placed between the coronary sinus and the aorta. The second stage of the operation was done March 22, 1951. The coronary sinus was partially occluded to a diameter of 2.5 mm. The veins in the myocardium became pink. This patient gave a favorable report on the result. His activity has increased, and his color has improved. He has no "icy sweats." He is thinking about returning to his practice. This patient had a severely damaged heart.

Case 27.—This woman, 51, was operated on March 22, 1951. There was an initial fall in blood pressure. An infarct was found in the posterior aspect of the left ventricle about 3 cm. in diameter. The heart was enlarged and had a sluggish beat. A graft of jugular vein was placed between the coronary sinus and the aorta. The veins became pink when the sinus was occluded. The postoperative course was complicated by recurrence of angina decubitus, probably an occlusion of another small coronary artery, an episode of 2: 1 auriculoventricular block, and gallop rhythm. The second operation was done May 31. A murmur was readily heard, and it was believed that the graft was patent. However, the graft was occluded by thrombosis. Nothing further was done to the heart because of the risk.

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[11] [illegible]rations in Cases 17 through 24 were done at St. Michael's [illegible]wark, N. J.; Drs. N. A. Antonius, John McGuire and [illegible] aided us in this study.

[12] [illegible] in Cases 25 through 28 were done at Hahnemann [illegible]a. Drs. George Geckeler and Charles Bailey aided

Case 28.—H. R., a man, 48, was operated on May 31, 1951. A large infarct was present on the posterior aspect of the left ventricle. The pericardium was adherent to this infarcted area. A graft of vein was placed between the coronary sinus and the aorta. When the coronary sinus was temporarily occluded, the veins in the heart became pink. Venous oozing from ventricles also became pink. The operation was well tolerated.

COMMENT

In this series of 28 patients there were 23 recoveries and 5 deaths, a mortality rate of 18%. Four of the five patients who died had advanced degenerative disease. These patients were completely or almost completely incapacitated. The fifth patient who died had unexplained necrosis of the graft, a complication which we had not observed. This patient had little or no coronary artery disease; extensive adhesions between the heart and pericardium were present. It is possible that a latent infection was activated. Of the 23 patients who recovered, 13 had both stages of the operation, and 2 had only the first stage. Of the remaining eight patients, the graft was thrombosed in six and not placed in two. In several of these eight patients the alternate operation was done. This consisted of abrasion of the heart and pericardium with application of a chemical irritant to produce intercoronary communications.[30]

The period of time is not sufficient to enable us to make clinical evaluation of these patients. So far the results appear to be or actually are favorable. A number of patients are nothing less than enthusiastic about the result. They get satisfaction in describing their improvement and urge other patients to have the operation done. The importance of scientific measurement of the results is recognized and will be carried out. In making clinical appraisal one can err in either direction, and this is to be avoided. Both time and additional experience are necessary to determine the benefit of this operation on patients.

CONCLUSIONS

In conclusion, several comments can be made. The development of this operation required years of experimental work. The benefit of the operation has been tested and measured on dogs. The benefit is, indeed, significant. The application to patients has been made with considerable mortality among bad-risk patients but with a more acceptable mortality among patients who are not completely incapacitated. The operation on patients has not been completely developed. The problem of thrombosis exists in some cases. No doubt this problem can be overcome. Another problem is to determine the results in patients and to find out whether the benefit to the dog can be transferred to the patient with coronary artery disease. In order to do this, the operation will have to be done on additional patients.

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AGE AND SURVIVAL IN CASES OF ACUTE MYOCARDIAL INFARCTION

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For the elderly patient with acute myocardial infarction a poor prognosis is frequently made by his attending physician, even when an uneventful recovery appears to be in progress. It is not clear whether this attitude is based on sound clinical and statistical experience or originates from the defeatism that has long been associated with treatment of the aged. It is true that crude statistics have shown that the mortality rate from acute myocardial infarction increases among those of advancing years. Woods and Barnes [1] observed the death rate to be twice as great among those beyond 60 as among those below; Rathe,[2] in his analysis of a series of cases, concluded that a poor prognosis is indicated when the patient is over 55. Hellmuth,[3] Levine and Brown [4] and others also confirmed the observation that the prognosis of an acute attack of myocardial infarction becomes progressively more serious as the patient increases in age.

Such statistical differences, however, could be due simply to a higher incidence of severe attacks in later life, rather than to a specific influence of age on survival in the individual case. At the time of writing no evidence could be found in the literature to justify the common belief that a patient over 60 has a greater chance of dying from acute myocardial infarction than a younger patient who has sustained an attack of similar severity. Thus, unwarranted conclusions may have been drawn from random comparison of mortality rates, without correction for differences in severity of attacks, clinical signs, or incidence of previous myocardial damage. Obviously, similar cases in different age groups must be compared if a true concept is to be formulated regarding the elderly patient's relative capacity for survival. The

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[2] Rathe, H. W.: Myocardial Infarction: Clinical Features and Prognosis, J. A. M. A. **120**: 99-103 (Sept. 12) 1942.

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data derived from such comparison would establish whether or not the statistical correlation of age with group prognosis reflects a similar age influence on survival in the individual case.

From the concept recently introduced by Dock,[5] it would appear that involutionary changes in the myocardium might be responsible for the higher mortality rate in elderly subjects with acute cardiac infarction. According to this view, senile deterioration of the myocardium occurs independently of coronary atherosclerosis and is an important factor in the precipitation of heart failure in patients over 50. A higher incidence of congestive failure accompanying acute myocardial infarction in older subjects, however, affords no proof that this complication is less ominous when it occurs under similar circumstances in younger patients. Since bedside evaluation of prognosis is largely dependent on the presence or absence of serious signs and symptoms, the clinician should know whether or not the significance of these criteria is altered by the element of age.

In an attempt to answer this question, age and mortality were studied in a group of 1,047 cases of acute myocardial infarction in which consideration was given, in each instance, to the severity of the attack, the occurrence of previous cardiac infarction, and the presence of specific clinical signs. From the findings observed during the first 24 hours of hospitalization, our cases were classified as "good risk" or "poor risk," and the effect of age on subsequent mortality was evaluated in each of the two categories. The following criteria were enumerated in order to identify patients who had sustained a severe attack or who for other reasons warranted a poor prognosis: (1) previous myocardial infarction, (2) intractable pain, (3) severe degree or persistence of shock, (4) significant enlargement of the heart, (5) gallop rhythm, (6) congestive heart failure, (7) auricular fibrillation or flutter, ventricular tachycardia or intraventricular block, and (8) diabetic acidosis or other serious complicating diseases. Patients who showed none of these symptoms on the first day of hospitalization were classified as "good risks" to distinguish them from the "poor risk" patients who manifested one or more of these unfavorable prognostic signs.

TABLE 1.—*Analysis of 1,047 Cases of Acute Myocardial Infarction According to Age and Severity of Attack*

	Total	"Good Risk"	"Poor Risk"
All ages	1,047	489 (46.7%)	558 (53.3%)
Under 60	618	331 (53.6%)	287 (46.4%)
60 or over	429	158 (36.8%)	271 (63.2%)

TABLE 2.—*Mortality Rate in 1,047 Cases of Acute Myocardial Infarction According to Age and Severity of Attack*

	Total	"Good Risk"	"Poor Risk"
All ages (%)	33.4	3.1	60.0
Under 60 (%)	28.8	3.0	58.5
60 or over (%)	40.1	3.2	61.6

COMPOSITION OF SAMPLE

The material was derived from three independent sources, the United States Public Health Service Hospital in Staten Island and the Maimonides and Kings County Hospitals in Brooklyn. An analysis was made of 1,047 patients consecutively admitted for acute myocardial infarction, of which 201 were treated at the United States Public Health Service Hospital, 223 at Maimonides Hospital, and 623 at the Kings County Hospital (State University, College Division). In every instance the clinical diagnosis of acute myocardial infarction was confirmed by one or more electrocardiograms. The age range for the entire series was 30 to 88 years, with a mean age of 56.7 years. The average age for the 618 patients under 60 was 51.5 years as compared with 67.4 years for the 429 patients 60 or older. The difference between the mean ages of these two groups was therefore 15.9 years. In the entire series there were 843 men and 204 women. The average age for the men was 56.0 years while that for the women was 60.0 years. When the male and female groups were analyzed separately, the average age for those under 60 and those 60 and over was found to be almost identical for the two groups. The crude death rate during the period of hospitalization was computed for the entire series and then for patients in each of the two component age groups. Comparison was then made between the mortality rates among the "good risk" cases and the "poor risk" cases in these two age groups. A similar breakdown of data was undertaken for the male and female groups. All of the patients in this study were treated by conservative means without the use of anticoagulants.

RESULTS

The mortality rate in 618 subjects under 60 was 28.8%; whereas, the mortality rate in 429 subjects 60 or older was 40.1% (Tables 1 and 2). These findings, therefore, confirm previous observations which recorded a statistical correlation of age with group prognosis. On the other hand, the mortality rate among 331 "good risk" patients under 60 was 3.0% while that among 158 similar patients 60 or older was almost identical—3.2%. An analysis of mortality among "poor risk" patients also failed to reveal that age is a significant factor in the outcome of the individual case. Thus, among 287 patients under 60 who showed unfavorable criteria for recovery on the first day of admission, the mortality rate was 58.5% as compared with 61.6% among 271 older patients who also showed poor prognostic signs. This small difference in death rate is not believed to be significant in view of the greater incidence of critical cases in the older "poor risk" group. Separate analysis of the data according to sex showed that among both men and women age plays no part in determining the outcome o the individual case once the attack has developed.

COMMENT

The analysis presented confirms previous observations which have indicated that the mortality rate from acute myocardial infarction is elevated among persons past middle age. It appears to show, however, that this increase in mortality is mainly the result of a higher incidence of serious attacks among those in the later decades of life. Thus, in our series 46.4% of the patients under 60 presented serious prognostic signs at the beginning of their clinical attack as compared with 63.2% of those 60 or older (Table 1). It appears unlikely that this difference results from greater impairment of coronary circulation in old age. The incidence of previous attacks of myocardial infarction was actually slightly less in our older age group. Moreover, the frequent observation that the aorta and coronary arteries are remarkably free from significant atherosclerotic change in elderly patients suggests that absence of severe atherosclerosis of the coronary vessels may be a prerequisite to the attainment of old age. It has been postulated that senile deterioration of the myocardium is an important factor in the precipitation of heart failure in patients over 50.[5] Such involutionary changes in the heart would best explain the greater vulnerability of the older patient as a result of acute myocardial infarction. This concept offers the most logical explanation for the greater frequency of serious attacks and the higher mortality observed statistically in old-age groups. Regardless of the explanation, however, our findings appear to show that once the attack has struck the immediate outcome can only be estimated from the clinical signs and symptoms in the individual case. Our grouping of patients according to the severity of the clinical picture during the first 24 hours of hospitalization has not demonstrated that the factor of age exerts a bearing on immediate survival. Although severe attacks are commoner in older subjects, the prognosis of a severe or mild attack appears to be unaltered by age. It must, therefore, be concluded that the statistical correlation of age with group survival is not accompanied by a similar age influence on survival in the individual case.

In a previous publication[6] we pointed out that no justification exists for the routine employment of bishydroxycoumarin (dicumarol®) in cases of acute myocardial infarction and that this form of therapy should be reserved for "poor risk" cases exclusively. It is our contention that only in the severer attacks does the benefit from bishydroxycoumarin therapy outweigh its harmful effects. Others[7] have noted that use of anticoagulants significantly reduces the mortality rate from acute myocardial infarction in old age groups, a result not observed among younger patients. The explanation for this finding obviously rests on the higher incidence of serious attacks among older subjects. However, since we have shown that age itself is not a significant factor in the immediate outcome of acute myocardial infarction in the individual case, age should not be considered an important element indicating or contraindicating the use of anticoagulants. It is therefore concluded that the history and the clinical signs and symptoms in any given case—and not the age of the patient—provide the data necessary for prognostication and for decision with regard to the use of anticoagulant drugs.

SUMMARY AND CONCLUSIONS

Crude statistics have shown that the death rate from acute myocardial infarction is considerably higher among patients over 60 than among those below this age. From these findings it has been generally accepted that the patient over 60 has a greater chance of dying from acute myocardial infarction than the younger patient who has sustained an attack of equal severity. The possible fallacy in such reasoning suggested a study in which the elderly patient's relative capacity for survival could be estimated from a comparison of clinical attacks of similar nature and severity.

An analysis of mortality in 1,047 cases of acute myocardial infarction is reported. From the data obtained the following conclusions have been drawn:

1. The higher mortality rate from acute myocardial infarction observed in older age groups is due to a greater frequency of serious attacks, probably as a result of senile deterioration of the myocardium.

2. Nevertheless, the outlook for a severe or mild attack is no worse in the elderly patient than in the younger one. The prognosis in an individual case clearly does not depend on age but on clinical signs and symptoms.

3. The statistical correlation of age with group prognosis, therefore, should not prejudice the clinician in his prediction of the probable outcome in any specific case.

4. Similarly, the age of the patient should not be considered an important factor indicating or contraindicating the use of anticoagulants in acute myocardial infarction.

5. The pessimism commonly revealed in the estimation of prognosis in any elderly patient with this disease is unwarranted if based on age alone. Too often the persistence of such pessimism, even after satisfactory recovery, has condemned the elderly "good risk" survivor to a nonproductive, boring existence. Patients in this category as well as those in younger groups may be successfully rehabilitated toward regaining a measure of personal, social, and economic independence consistent with their residual capacity.

176 Hart Blvd. (Dr. Russek).

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Artefacts on Chest X-Ray Films.—A type of opaque, white artefact which occurs on the chest roentgenogram is often mistaken for a pulmonary infiltration. Although it may at times resemble an area of primary atypical pneumonia, or a fresh unorganized pulmonary infarct, this artefact is most likely to be confused with the early minimal lesion of pulmonary tuberculosis. . . . The so-called "pressure mark" . . . is dependent upon a local change in the sensitivity of the film emulsion with consequent alteration in its response to roentgen-ray exposure. These changes . . . are brought about by mechanical stretching, bending or compression. The opaque, white "pressure mark" results from the latter influences only when applied to the film before its roentgenographic exposure. . . .

Although "pressure marks" may be strongly suspected when the shadow in question shows a higher degree of whiteness than any other portion of the chest roentgenogram, and when this whiteness diminishes imperceptibly towards its periphery, an acute exudative tuberculous lesion of a confluent lobular nature has at times been noted to present a very similar appearance. . . . The observer's index of suspicion should be heightened . . . when any of the following conditions are noted: (1) the presence of associated artefacts more readily identified; . . . (2) the presence of a generalized increase in film sensitivity as evidenced by a roentgenogram which appears darker than it should after normal exposure and development, or appears of uneven density. The shadow which appears crescent-shaped will be easily recognized as a typical "pressure mark," especially if accompanied by a sharp black "crinkle" line, or by a linear white mark bisecting its concavity. The observer's suspicions are confirmed when immediate roentgenographic re-examination fails to disclose the shadow previously noted.—Irving J. Kane, M.D., Artefacts Simulating Minimal Pulmonary Tuberculosis, *The American Journal of Roentgenology and Radium Therapy*, November, 1951.

ORAL CORTISONE THERAPY IN INTRACTABLE BRONCHIAL ASTHMA

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Specific treatment of bronchial asthma, such as avoidance of offending allergenic agents and specific hyposensitization, so far are the best methods to pursue in order to obtain complete relief of symptoms. However, when a patient is observed during an acute asthmatic attack, satisfactory symptomatic relief is desired as quickly as possible. The type of treatment instituted will depend on the severity, frequency, and duration of the asthmatic attack. In acute asthma, and even in chronic asthma, the acute exacerbations can be relieved without difficulty with epinephrine or aminophylline, and in mild attacks with oral or aerosol bronchodilators. The administration of cortisone is not the first line of approach in the treatment of acute asthma.

In a small number of patients the asthmatic paroxysm increases in severity, the usual therapeutic measures fail, the patient becomes epinephrine-fast and remains in a severe, constant asthmatic state, designated as status asthmaticus. In these patients the usual therapeutic measures, such as the use of fluids, oxygen, intravenous aminophylline, and 5% dextrose, antibiotics, iodides, and barbiturates, should be employed first.

In patients with status asthmaticus who have failed to respond to the usual therapeutic measures, Randolph and Rollins,[1] Carryer and associates,[2] Segal and Herschfus,[3] Rose,[4] and others [5] have reported striking benefit resulting from the use of corticotropin (ACTH) or intramuscularly administered cortisone. They produced marked symptomatic relief in most cases. It should be emphasized that once corticotropin or cortisone therapy is instituted, the usual therapeutic measures should not be discontinued immediately. Repeated injections of epinephrine or aminophylline may still produce some immediate but temporary relief until corticotropin or cortisone takes effect. These hormones do not work rapidly nough to relieve the asthmatic symptoms immediately or ave the patient's life in an acute allergic emergency. From the experience of several investigators, the symptoms are relieved within 24 to 96 hours after corticotropin or cortisone therapy is started. With the onset of symptomatic relief the usual therapeutic measures can be gradually eliminated. Relief with cortisone or corticotropin is temporary, and symptoms tend to recur. During the period of remission, an attempt should be made to determine and avoid the etiological factor or factors and specific hyposensitization should be instituted.

Sometimes, the acute asthmatic attacks are so frequent, the patient has no interval free from symptoms. Even between the acute attacks, the patient has some dyspnea and wheezing. These symptoms may persist for days, months, or even years. The patients in this group are designated as having chronic intractable bronchial asthma.

TABLE 1.—*Clinical Course of Patients Prior to Oral Cortisone Therapy*

Patient	Age (Yr.)	Sex	Duration of Asthma (Yr.)	Severity of Attacks
1. F. N.	10	F	8	Very severe; daily for 3 mo.
2. C. W.	32	M	1½	Moderately severe; daily 2 mo.; emphysema
3. C. M.	35	F	11	Moderately severe; daily 6 mo.; emphysema
4. I. I.	33	F	8	Very severe; daily 1 mo.
5. B. K.	51	M	17	Moderately severe; daily 6 mo.; emphysema
6. B. P.	5	F	3½	Very severe; daily 2 weeks
7. H. A.	42	M	35	Very severe; daily 1 mo.; 87 injections of epinephrine in 17 days
8. A. M.	55	M	26	Moderately severe; daily for 5 yr.; emphysema
9. E. M.	49	F	32	Moderately severe; daily 3 mo.
10. S. G.	25	M	9	Moderately severe; daily 2 weeks
11. R. R.	47	F	3	Moderately severe; daily 2½ mo.
12. A. B.	38	F	2½	Very severe; daily for 2 weeks
13. R. S.	18	F	3	Moderately severe; daily 2 weeks; pulmonary vascular allergy
14. M. A.	37	F	3	Moderately severe; daily 6 weeks
15. G. L.	30	M	27	Moderately severe; daily 4 weeks
16. G. Y.	10	M	4 mo.	Very severe; continuous 4 days
17. E. Z.	6	M	4	Moderately severe; daily 3 weeks
18. H. T.	67	M	9	Very severe; continuous symptoms 8 yr.; bronchiectasis; emphysema
19. A. C.	8	M	2	Moderately severe; daily 2 weeks
20. A. L.	66	F	20	Moderately severe; daily 1 yr.
21. H. C.	23	F	1½	Moderately severe; daily 1 mo.
22. H. D.	42	F	6	Very severe; 24 hr. duration

SCOPE OF STUDY

A study has been undertaken to determine whether orally administered cortisone will influence the symptoms of chronic intractable bronchial asthma (Table 1). A total of 22 patients receiving 31 courses were treated with orally administered cortisone tablets. The ages of the patients ranged from 5 to 67 years. There were 12 females and 10 males. The duration of asthma varied from four months to 35 years. Prior to the onset of oral cortisone therapy, these patients had moderately severe, or very severe, incapacitating asthmatic attacks ranging in duration from four days to six years, and were resistant to all other forms of therapy. Oxygen inhalation and repeated injections of intramuscular epinephrine and intravenous aminophylline were required several times

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Cortisone acetate tablets were furnished through the courtesy of Merck & Company, Inc., Rahway, N. J.

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From the Division of Allergy of the Department of Medicine, The Long Island College Hospital and the State University of New York Medical Center at New York City, College of Medicine.

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during the day and at night in most cases, and produced slight and temporary relief. Hyposensitization in 15 of the 22 patients had not afforded significant relief.

An attempt was made to minimize the occurrence of possible side effects. All patients were given a low-sodium diet and 15 drops of saturated solution of potassium iodide three times daily. The group consisted of clinic and office patients. They were observed daily and contacted as often as it was necessary. The patients' weight, fluid intake and output, blood pressure, and the results of the urine examination for sugar were charted daily. In the beginning, extensive laboratory tests were made. However, later on it was found that short-term therapy could be carried out safely for up to two weeks without extensive tests if there were proper cooperation between patient and physician and careful observation as to the possible occurrence of side effects. With long-term therapy, extensive laboratory tests were again made once or twice weekly. Patients with hypertension, diabetes mellitus, congestive heart failure, coronary artery disease, peptic ulcer, and psychopathic personalities were not included in this study.

TABLE 2.—*Results of Oral Cortisone Therapy*

Patient	Duration of Treatment: Course	Duration of Treatment: Days	Results	Length of Remission	Remarks
1. F. N.	1	12	Excellent	2 weeks	Returned to school on 4th day of cortisone therapy; best winter in 5 yr.
	2	2	Excellent	10 days	
	3	2	Excellent	10 days	
2. C. W.	1	14	Excellent	10 days	Status asthmaticus developed during 4th course; hospitalization; usual therapeutic measures failed; intramuscular ACTH therapy produced relief
	2	7	Excellent	3 days	
	3	1½	Excellent	14 days	
	4	2	None	....	
3. C. M.	1	45	Good	2 days	On 2d day of cortisone therapy, resumed household duties—1st time in six months
4. I. I.	1	24	Good	2 days	On 4th day of therapy did entire family wash; on 7th day danced all evening; on 22d day angioneurotic edema of face and generalized urticaria developed (1st time in 3 yr.)
5. B. K.	1	35	None	None	Decrease in dyspnea and cough; examination of chest always wheezing, though symptomatically improved
6. B. P.	1	4	Excellent	210+ days	Marked improvement 2 hr. after 1st dose of 12.5 mg. cortisone
7. H. A.	1	17	Excellent	1 day	On 2d day of therapy did heavy work putting up storm windows and gardening
	2	14	Excellent	7 days	
8. A. M.	1	18	Fair	3 days	On 4th day of therapy was able to work 1st time in 10 mo.
	2	5	None	....	
9. E. M.	1	29	Excellent	180+ days	Best relief in 32 yr.
10. S. G.	1	4	Excellent	92 days	Relief in 24 hr.; 4 days treatment
11. R. R.	1	7	Good	42 days	Symptomatic relief; examination of chest wheezing at all times
12. A. B.	1	7	Excellent	1 day	Relief after 2d tablet of cortisone
13. R. S.	1	7	Excellent	64 days	Transitory pulmonary infiltration with blood eosinophilia of 18 mo. duration arrested with intramuscular cortisone; remission of pulmonary infiltrations 16 (+) mo.
14. M. A.	1	5	Good	18 days	Even with complete relief of symptoms, examination of chest showed slight wheezing
	2	2	Good	9 days	
15. G. L.	1	4	Excellent	150+ days	Mediastinal and subcutaneous emphysema during asthmatic attack Nov., 1944
16. G. Y.	1	2	Excellent	12 days	Relief in 12 hr.; previously no relief with epinephrine, aminophylline, oxygen, penicillin
17. E. Z.	1	12	Good	11 days	Allergic rhinitis also improved, while taking cortisone
18. H. T.	1	2	None	....	Patient died after 2 days of cortisone therapy; total dosage 400 mg.; autopsy findings: complete fibrosis, myocardium left ventricle, severe generalized arteriosclerosis, emphysema, bronchiectasis, hypertrophy right heart; adrenals, normal size and shape, no depletion of lipids
19. A. C.	1	6	Excellent	6 mo.	Complete relief in 24 hr.; remission 6 mo. in duration
20. A. L.	1	1	None	....	Cortisone therapy discontinued because of edema of hands and feet
21. H. C.	1	25	Fair	12 hrs.	Return of pretreatment pattern of asthmatic attacks after 2 courses of cortisone therapy
	2	12	Excellent	9 days	
22. H. D.	1	7	Excellent	14 days	13 previous hospital admissions because of status asthmaticus; oral cortisone might have prevented another; remission after cortisone, 14 days; then sudden severe status asthmaticus requiring hospitalization developed; relief in 36 hr. with ACTH and usual therapeutic measures

DOSAGE SCHEDULE

The initial daily dose of cortisone ranged from 200 mg. to 300 mg. for adults. The daily dose for the second day ranged from 100 mg. to 200 mg. and was followed by 100 mg. daily until adequate relief was obtained. When relief occurred, the dose was reduced to the minimum amount necessary to maintain adequate relief. The total daily dose was given orally in four equal doses at four-hour intervals. The dose for children was 25% to 75% of the adult dose. In adults the average maintenance dose was 25 mg. twice daily, although an attempt was made to adjust the dose to the clinical response of the patient. The duration of therapy ranged from 1 to 45 days.

RESULTS OF TREATMENT

Orally administered cortisone definitely relieved the symptoms of chronic intractable asthma in 26 of 31 courses given to 22 patients. Five courses in five different patients had no benefit, and four of these five patients had emphysema. In those patients who obtained relief it was much greater than that previously obtained with any other medicament. Eighteen patients obtained relief in 5 to 12 hours, six in 24 hours, one in 48 hours, and one in 72 hours. Relief was maintained as long as adequate therapy was continued. Discontinuation of cortisone therapy, or too great a reduction in the daily dose, resulted in a partial or complete recurrence of the pretreatment pattern of the asthmatic attacks. The symptoms of 18 patients (61%) relapsed within two weeks after cortisone therapy was stopped; in 8 patients they relapsed within the first week and in 10 during the second week. The shortest period of remission was 12 hours; the longest, 210 days. There was no relationship between the total dosage, or duration of adequate therapy, or both, and the length of the remissions in these patients (Table 2).

Five patients had more than one course of therapy:

1. F. N. had three courses with excellent results, with remissions of 14 days, 10 days, and 10 days. Thereafter her symptoms were easily controlled with oral or aerosol bronchodilators.

2. C. W. had excellent results with the first three courses and none with the fourth.

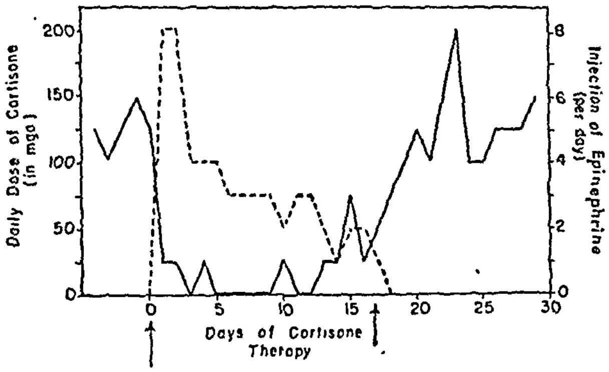
3. H. A. had marked relief with two courses but his remissions lasted only one and seven days.

4. M. A. was given two courses with good results each time and remissions of 18 and 19 days.

5. H. C. after 25 days of therapy had fair relief with a remission of 12 hours, and with the second course of 12 days' treatment had excellent results with a remission of nine days.

The following paragraphs describe in greater detail certain aspects of several cases in which oral cortisone therapy was used. The case numbers refer to those in Tables 1 and 2.

Case 7.—H. A. had received 17 days of cortisone therapy during the first course of treatment, with excellent relief. Prior to the onset of cortisone therapy he had been using between four and six injections of epinephrine daily (Chart), and the total for a similar pretreatment period of 17 days was 87 injections. During the first 12 days of treatment he required only one injection on each of the 1st, 2nd, 4th, and 10th days. On the others he used none. From the 13th to the 17th and final day of treatment, when the dosage was either 25 mg. or 50 mg., he used a total of eight injections. After discontinuing cortisone he had a remission of one day, and thereafter he needed between three and eight injections a day, a total of 85 injections, for a similar 17-day period. He had excellent results with a second course of 14 days' therapy with a remission of 7 days' duration. From then on, with the simultaneous administration of 50 mg. of cortisone every third day and oral bronchodilators for 26 days, he was able to decrease his epinephrine injections to one, and occasionally two, injections a day. Previously, oral bronchodilators did not afford relief.



Relationship between epinephrine requirements and cortisone therapy.

Case 18.—H. T., a 67-year-old man, died from an acute asthmatic attack after two days of cortisone therapy. The total dosage was 400 mg. The patient experienced marked relief in 36 hours, and then the clinical picture changed rapidly and the patient died suddenly during an acute asthmatic attack. The autopsy findings (made by Dr. Joseph Bellamy) were as follows:

Severe generalized arteriosclerosis. Severe coronary arteriosclerosis with calcification and marked narrowing of all branches. The myocardium of the left ventricle showed large areas of complete fibrosis, particularly in the septum. The heart was not enlarged, and there was slight left ventricular hypertrophy. The lungs showed emphysema, bronchiectasis, and fibrosis, particularly of the apical regions. The right side of the heart showed moderate hypertrophy. The liver and spleen showed changes of congestive heart failure. The kidneys showed severe arteriosclerotic scarring. The adrenal glands were normal in size and shape. The adrenal cortex was yellow and there was no depletion of lipids. Incidental findings not related to the cause of death were nodular goiter and benign prostatic hypertrophy. It was the opinion of the pathologist that the main cause of death was the severe damage to the heart, which, with the added burden of the lung disease, was unable to cope with the strain.

Case 13.—R. S., a 17-year-old female student, was treated successfully in February, 1950, with intramuscularly administered cortisone because of transitory pulmonary infiltrations with blood eosinophilia of 18 months' duration. She had an unusual, stormy, and protracted clinical course, and her response to cortisone was remarkable and dramatic. It produced a disappearance of fever, tachycardia, leukocytosis, pulmonary infiltrations, anemia, purpura, arthralgia, polyneuritis, and subcutaneous nodules. Cortisone had no effect on a preexisting right bundle branch block and cardiac hypertrophy. Cortisone interrupted the downhill course of the disease. To date her response to effort is normal and the length of remission of the pulmonary infiltrations is 16 months. However, she continued to have mild asthmatic attacks, and on one occasion a moderately severe intractable asthma of two weeks' duration developed which failed to respond to the usual therapeutic measures. She had excellent relief 12 hours after the onset of oral cortisone therapy. The duration of treatment was seven days, followed by a remission of 64 days.

There seemed to be an increase in the sense of well-being with most of the patients, and in several a sense of euphoria developed. Several of the patients showed a marked increase in physical activity while taking cortisone. The increased physical activity was mainly due to symptomatic relief. In some, however, the sense of well-being, or euphoria, was present even though examination of the chest at the time revealed wheezes and sibilant and sonorous rales. As a rule the appetite was increased. In one patient ankle edema developed after she had received cortisone for 24 hours; this cleared up when the medication was stopped. There was an initial decrease in urinary output in four patients, and an initial gain in weight in six. There was no change in the blood pressure in any of the patients. Occasionally an instance of glycosuria appeared. With the decrease of the dose these side effects disappeared. No incidence of hemorrhagic tendency, appearance of ulcer, or masked infection such as pneumonia or septicemia has been encountered in this series of patients. There were no other side effects, and there were no significant changes in serum sodium, potassium, or blood chloride levels.

SUMMARY AND CONCLUSION

Orally administered cortisone relieved the symptoms of intractable bronchial asthma in 26 of 31 courses of treatment given to 22 patients. Five courses in five different patients had no beneficial effects, and four of the five patients had emphysema. Relief was much greater than that obtained previously with any other medication. Relief with orally administered cortisone occurred within 5 to 72 hours after the onset of therapy, and on adequate dosage was maintained during cortisone administration. The symptoms of 18 patients (61%) relapsed within two weeks after cortisone was discontinued. In this series of patients there was no relationship between the total dosage or duration of therapy, or both, and the length of remissions. Ankle edema occurring in one patient, an initial decrease in urinary output in four, an initial gain in weight in six, and an occasional occurrence of glycosuria disappeared on decreased dosage of cortisone. One patient died from an acute asthmatic attack, and the autopsy findings showed no evidence of relationship between cortisone therapy and the cause of death. Once an optimum dose of cortisone has produced complete relief, the simultaneous administration of suboptimal doses of cortisone and such types of drugs as bronchodilators, iodides, antibiotics, and other well-tried general measures of treatment suggest the possibility that a remission can be maintained much longer. A low sodium intake should be continued after the course is terminated in order to stimulate the patient's own adrenal cortex and reduce the early relapses. The results justify the use of orally administered cortisone for symptomatic relief in intractable bronchial asthma after the usual therapeutic measures have failed. Cortisone therapy is not a substitute for allergic management. Only by the elimination of the offending factor, or factors, and hyposensitization where elimination cannot be carried out, can one obtain complete success.

295 New York Ave.

TERRAMYCIN IN EPIDEMIC TYPHUS, AMEBIC DYSENTERY, AND TYPHOID

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Terramycin, introduced one year ago, has been tried and found successful in the treatment of an extensive array of human diseases. Its usefulness in epidemic typhus, acute amebic dysentery, and typhoid, however, has not yet been established. This report presents the results of treatment in five patients with epidemic typhus, seven patients with acute amebic dysentery, and five patients with typhoid. The findings suggest that in epidemic typhus terramycin is curative and that in acute amebic dysentery it is efficacious but has definite limitations. In typhoid, contrary to reports of failure to date, terramycin may elicit a favorable response in some patients.

Snyder and his colleagues [1] in experiments with chick embryos found that terramycin suppressed the multiplication of Rickettsia prowazeki, but in studies on infected cotton rats the same authors were unable to obtain survival. Reports of trials in epidemic typhus in humans have not yet come to our attention, but clinical studies have demonstrated the effectiveness of terramycin in other rickettsial diseases. Schoenbach and his co-workers [2] and Bauer and his co-workers [3] have reported the use of terramycin in four cases of Rocky Mountain spotted fever. All the patients responded rapidly, becoming afebrile in 36 to 72 hours. Similar favorable action of terramycin in other rickettsial diseases has been observed by Rose [4] in four cases of rickettsialpox, by Smadel and collaborators [5] in four cases of tsutsugamushi disease, and by Bauer and his colleagues [3] in one case of murine typhus.

Most and Van Assendelft [6] reported on a 10-day treatment with terramycin in 22 patients with amebiasis. One patient, whose stools had become negative for amebae, again had positive stool cultures on the 11th day after the termination of therapy; the stools of the other 21 patients remained negative. However, the duration of follow-up was short. Eight of 11 patients had been followed less than three weeks, and the exact interval of study on the others is not clear. The average number of stools examined per patient subsequent to therapy was 3.3. No cases of acute amebic dysentery were reported in the series.

Reported experience with terramycin in typhoid is meager. Bauer and his co-workers [3] described one patient who did not respond to a five-day course of treatment which began on the 20th day of illness. Reference is made in the same paper to unpublished studies by Knight [7] which "indicated that terramycin has little effect in clinical typhoid fever." Attempts by Bauer [8] to eradicate the infection in two biliary tract carriers also failed. Treatment with terramycin of other Salmonella infections has been more encouraging. Satisfactory response has been noted in four cases of gastroenteritis, three due to Salmonella newington and one to Salmonella oranienburg.[8]

EPIDEMIC TYPHUS

The five patients in this series came to our attention near the end of the first week of illness, when the cutaneous rash appeared; thus the duration of illness at the beginning of treatment ranged from six to eight days. The severity of the illness on admission varied considerably even in this small series. One patient, although his temperature was high and the rash moderately heavy, ap-

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The terramycin was supplied by Charles Pfizer and Co., Inc., Brooklyn.

From the Department of Clinical Investigations, U. S. Naval Medical Research Unit No. 3, Cairo.

Complement-fixations and rickettsial agglutinations were performed at the Army Medical School, Washington, D. C., and the National Institutes of Health, Bethesda, Maryland.

These studies were made possible by the cooperation of the Egyptian Ministry of Health; Dr. Aly Bey Abdel Wahib, Director of the Abbassia Fever Hospital; and Dr. Hassan Fahmy Khalil Bey, Director of the Imbaba Fever Hospital, Cairo.

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peared to be only slightly ill. Three patients were severely ill, and the fifth patient was considered to be fatally ill.

Four tests were utilized to establish the diagnosis of typhus: (1) Weil-Felix (OX19) agglutination with rising titer; (2) complement fixation; (3) rickettsial agglutination; and (4) isolation of rickettsiae from the patient's blood by guinea pig and mouse inoculation. Four of the cases fulfill three of the criteria for a diagnosis of typhus; one case fulfilled two of the criteria. Rickettsial agglutinations in the latter case were positive for murine typhus in higher dilutions than for epidemic typhus, but clinically this case could not be differentiated from one of epidemic typhus.

The dosage of terramycin was 75 mg. per kilogram of body weight per day. The drug was administered on a four-hour schedule with a preliminary loading dose of 25 mg. per kilogram of body weight. Terramycin blood levels were checked in all patients and varied from 2.6 to 11.1 γ per milliliter. Therapy was continued until the patient had been afebrile for 48 hours.

In this series the response was uniformly rapid. The stupor present on admission in the first four patients cleared within 24 hours. The fifth patient was maniacal on admission and unable to articulate clearly. He continued in an acute psychotic state for nine days, i. e., until two days after cessation of therapy, at which time his mental state began to show improvement; his subsequent convalescence was uneventful.

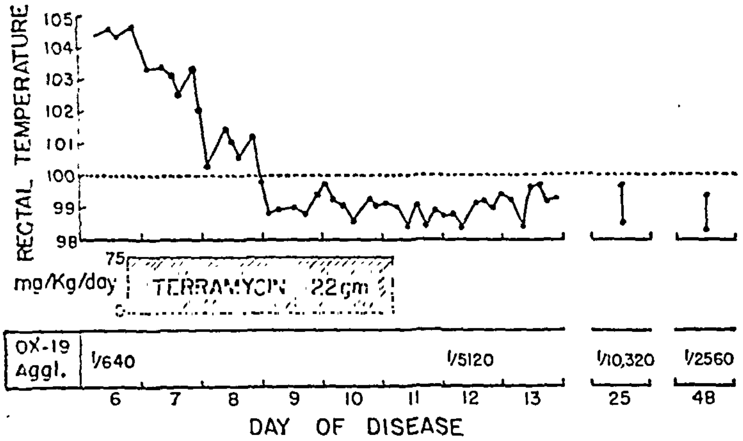

Fig. 1.—Temperature response of patient with typhus to terramycin within 56 hours. Uncomplicated convalescence.

Rectal temperatures on admission ranged from 103 to 106 F, but, as did the other signs and symptoms, the fever rapidly subsided on treatment. The temperatures of four of the patients became normal within three days, but the most severely ill patient required five days to attain a normal temperature. There were no complications during convalescence. A typical clinical course as observed in four of the five cases is illustrated by the following case report.

REPORT OF CASE

An Egyptian man, aged 34, was well until six days prior to admission, when he had a shaking chill and a severe frontal headache and fever developed. On the second day of his illness he went to bed because of pain in his thighs, calves, and knee joints. On the third day he had ringing in his ears and a cough productive of small quantities of clear sputum. He was seen by a physician, who advised hospitalization. On admission (Fig. 1) the temperature was 104.4 F and the patient was mentally confused. Examination showed a macular rash on the trunk, most marked on the back but also involving the arms and legs. There was no rash on the palms or soles. Most of the lesions blanched on pressure, but some were fixed. Two hemorrhagic areas were present in the conjunctiva of the left eye. Both lungs were resonant to percussion, but there were scattered rhonchi and crepitant and musical rales to auscultation. The liver was just palpable at the right costal margin, and the spleen was palpable 3 cm. below the left costal margin; neither was tender.

The total white blood cell count was 7,500, with 73% neutrophils. Blood drawn on admission agglutinated Proteus OX19 in the dilution of 1:640. A portion of this specimen inoculated into guinea pigs subsequently led to the isolation of a Rickettsia.

Terramycin was begun on the seventh day of illness. Within 24 hours the patient was alert and his headache had decreased in intensity, although the temperature remained elevated. No new rash was identified. At the end of 52 hours of treatment, the patient had become afebrile and the only complaint was of slight dizziness. Terramycin was discontinued after 48 hours without fever, the patient having received a total of 22 gm. He was allowed to become ambulatory on the fifth day of hospitalization; subsequent convalescence was uneventful.

AMEBIC DYSENTERY

To date seven patients with amebic dysentery have been treated with terramycin. Three of the patients had experienced prior attacks of bloody diarrhea, and two of these three had been treated with aureomycin for amebiasis three months previously.

On admission to the hospital all of the patients complained of generalized abdominal cramps and bloody diarrhea with mucus. In addition six complained of pain in the right upper abdominal quadrant. All seven exhibited tenderness over the hepatic area, and in six the liver was enlarged to below the costal margin. All had tenderness over both the ileocecal and the rectosigmoid areas.

Repeated stool examinations revealed numerous motile trophozoites of Endamoeba histolytica. Stool cultures were positive for E. histolytica and negative for bacterial pathogens in every case. Proctoscopic examinations revealed various degrees of mucosal ulceration, inflammation, and edema. Specimens taken from these ulcerations again showed numerous active trophozoites of E. histolytica, many with ingested red blood cells.

The loading dose of terramycin consisted of 50 mg. per kilogram of body weight given in the first hour. The dose administered for the first three days was 150 mg. per kilogram per day, after which it was reduced to 75 mg. per kilogram per day for the balance of the total treatment period of 14 days. Three of the seven patients complained of anorexia and nausea while on the *initial* higher dose. These side-effects promptly disappeared after the planned reduction in dosage.

In general the response to treatment was good. Stools and proctoscopic specimens became negative for amebae in four patients within two days, while the other three, more severely ill, required four to eight days to produce negative stools and specimens. Abdominal cramps and bloody diarrhea disappeared within two to six days, and the time required for disappearance of these symptoms was generally proportional to the degree of the lesions observed at proctoscopy. Pain in the right upper abdominal quadrant and hepatic tenderness required a longer period to disappear, and in one patient hepatic abscess developed during terramycin therapy.

Two of the seven patients have only recently completed treatment and cannot be discussed in terms of follow-up. Of the five patients with a follow-up of three months or more, only two have remained asymptomatic and clinically free of E. histolytica after one course of terramycin. *These two patients have had 57 and 18 stools* examined and found negative during follow-up periods of 19 and 14 weeks, respectively. In the other two patients, E. histolytica recurred in the stools. In one of these the parasite was observed again only eight days after the cessation of therapy while the patient was still in the hospital. Symptoms of dysentery recurred in this patient; he was retreated with terramycin with a satisfactory response. In the other patient, E. histolytica reappeared in the stool within a month after he had been discharged. The former case seems almost surely a relapse; the latter may possibly represent a reinfection. The fifth patient, although his stools had become negative for amebae and his dysentery had responded well, is the one in whom a hepatic abscess developed during terramycin therapy. The report of this case follows.

REPORT OF CASE

An Egyptian man, aged 35, was well until 16 days before admission, when generalized abdominal cramps developed, associated with bloody diarrhea seven to ten times daily, low grade fever, and marked anorexia. His symptoms gradually increased in severity, and he passed as many as 21 bloody liquid stools per day. Other than three tablets of an iodochlorhydroxyquin preparation (entero-vioform®) daily for two or three days just prior to admission, the patient had received no specific medication. He denied previous similar episodes of diarrhea.

Physical examination on admission revealed an acutely ill, emaciated man with obvious abdominal discomfort and with marked tenderness in the right upper and lower quadrants of the abdomen. Rectal temperature was 100 F. Abdominal splinting prevented palpation of the liver edge, but percussion indicated that this organ was enlarged to about 4 cm. below the costal margin. The stools consisted largely of blood and mucus and contained many trophozoites of E. histolytica, some with ingested red blood cells. Proctoscopy revealed numerous ulcer craters up to 1.5 cm. in diameter and marked mucosal edema. Protoscopic specimens taken from the ulcers contained many E. histolytica trophozoites and were negative for enteric pathogens by bacterial cultures. The white blood cell count was 17,600, with 91% neutrophils. Liver function studies revealed a sulfobromophthalein retention of 9% at 45 minutes, serum bilirubin of 1 mg. per 100 cc., and normal thymol and zinc turbidities.

The patient was given the experimental routine dosage of terramycin on his fifth hospital day (Fig. 2). His condition began to improve within 36 hours after the institution of therapy. Stools gradually became less frequent and no longer contained gross blood. Hepatic and abdominal pain and tenderness decreased in severity, and the patient's appetite improved. However, on the fourth day of treatment the patient began to complain of increasing pain in the hepatic area; on the sixth day of terramycin therapy his temperature rose to 103 F. Although stools were normal in color, semi-formed, and negative for amebae by the ninth day, the patient continued to be febrile and complained of increasing pain. On the 11th day a mass was visible in the right upper quadrant of the abdomen. Three days later, after 14 days of treatment, terramycin was discontinued, the total dose having been 66 gm. At this time the liver edge was palpable 18 cm. below the right costal margin in the midclavicular line. The hepatic mass, first noted on the 11th day, now measured 10 cm. in diameter and was markedly tender and fluctuant. After the completion of terramycin therapy, the patient was given chloroquine, 1 gm. daily for two days and then 0.5 gm. daily for 12 additional days. Response was dramatic, with defervescence of fever in 36 hours. The patient appeared less toxic, his appetite returned, and liver pain and tenderness decreased in severity. On the 10th day of chloroquine therapy, 245 cc. of tenacious pea-green exudate was aspirated from the mass, with further diminution of pain and tenderness in the right upper abdominal quadrant. Examinations and cultures of the exudate for both E. histolytica and bacteria were negative. After the completion of chloroquine therapy, the patient continued to improve. He was observed on the ward for another eight weeks, during which time he gained 42 lb. (19 kg.) in weight. The liver edge gradually receded to a point 3 cm. below the costal margin. During this period of observation, 35 stools, of which five were purged specimens, were examined in saline smears, by stained smears, and by culture. All were negative for E. histolytica. Proctoscopy one week before discharge revealed one small superficial ulcer in the rectum; otherwise the findings were negative. At last examination, six weeks following discharge, the patient had remained asymptomatic and three additional stool examinations had been negative for *E. histolytica.*

TYPHOID

Five patients with typhoid have been treated with terramycin. All were acutely ill and febrile. The duration of illness before treatment ranged from 6 to 11 days, with an average of 9 days. In all five cases Salmonella typhosa was isolated from the blood, and in three the organism was also isolated from the feces. Admission Widal tests resulted in titers varying from 1:10 for O antigen and negative for H antigen, to 1:1,280 for O and 1:1,280 for H.

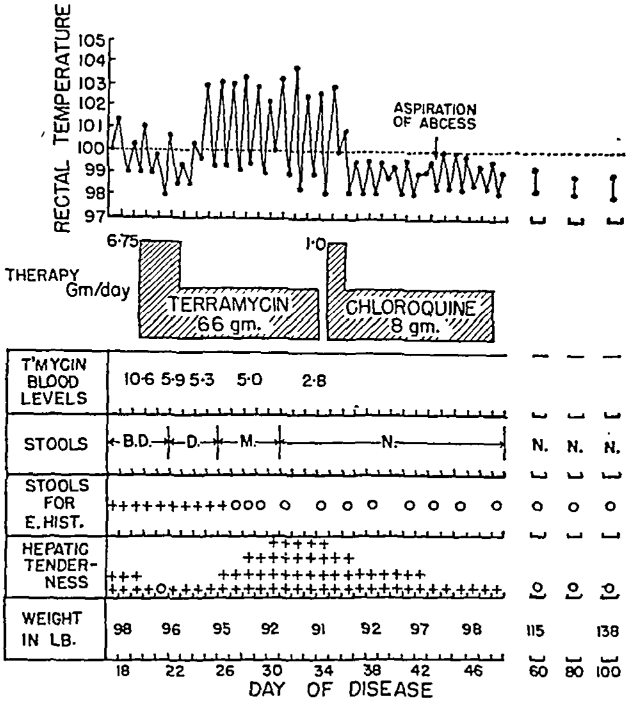

Fig. 2.—Initial response of 35-year-old-man to terramycin followed by increasing symptoms and signs of a hepatic abscess during course of amebic dysentery. Subsequent chloroquine therapy and aspiration resulted in resolution of the abscess. B.D., D., M., and N. refer to bloody diarrheic, diarrheic, mushy, and normal stools, respectively.

The first three patients were started on terramycin at 75 mg. per kilogram of body weight per day. In one of these the dose was later increased to 125 mg. per kilogram per day. The dose in the remaining two patients was 100 mg. per kilogram per day.

Clinical response following the institution of terramycin therapy was variable. Only three of the five patients appeared to respond to the drug, becoming afebrile in an average of four and one-half days after the institution of therapy. These three patients received an average total dosage of 43 gm. over an average period of 11½ days. Another patient did not become afebrile until after 15½ days of terramycin therapy (26th day of illness).

In this patient the prolonged period of fever following the institution of therapy probably represented a course of the disease uninfluenced by therapy. The remaining patient was initially treated with 75 mg. per kilogram of body weight per day. Because the organism isolated from his blood required 3.12 γ of terramycin for inhibition of growth for 48 hours and the blood levels attained with the initial dosage were from 3.7 to 5.2 γ, the dosage was increased to 125 mg. per kilogram per day. After this increase in dosage, the blood levels ranged from 5.7 to 7.7 γ. However, this patient continued to be febrile and had an intestinal hemorrhage on the third day. After remaining highly febrile for 22 days on terramycin therapy (98 gm. of the drug), the patient was given chloramphenicol, with satisfactory response within 36 hours.

All four of the patients treated with terramycin alone were followed for three to five weeks after the completion of therapy. In none of these were positive urine or stool cultures observed during this period, nor were there clinical findings suggestive of relapse. The patient that failed to respond to terramycin and therefore received chloramphenicol was found to be excreting S. typhosa in his feces two months after the completion of therapy.

SUMMARY

Experience with terramycin in five cases of epidemic typhus, seven cases of acute amebic dysentery, and five cases of typhoid is reported.

In typhus the response to treatment with an average of 22 gm. of terramycin administered over an average of five days was excellent. Subjective and objective improvement was observed within 24 hours of the beginning of treatment in all patients. Four patients became afebrile within three days, and by the fourth day these patients were in uneventful convalescence. The fifth patient, moribund on admission, became afebrile by the sixth day; convalescence thereafter was uneventful save for some mental confusion which persisted until the 10th day. The results, as observed in the five cases, appear to compare favorably with reports in which chloramphenicol or aureomycin has been used.

In amebic dysentery an average of 66 gm. of terramycin was administered over a 14-day period. In all patients there was disappearance of bloody diarrhea, tenesmus, and other dysenteric symptoms within two to six days (average four days). Stools and proctoscopic specimens became negative for amebae after two days in four patients and after four to eight days in the remaining patients.

Unlike the dysenteric symptoms, hepatitis, concomitant in all patients, disappeared slowly. In one patient a hepatic abscess developed during terramycin therapy. The administration of chloroquine resulted in recession and final cure of the abscess. The result in this case and the relatively poor response of hepatitis to terramycin alone in the other cases suggest that the combined use of chloroquine and terramycin may prove more efficacious to combat both the hepatic and the dysenteric phases of the disease.

Five of the patients treated for dysentery have been followed for three to five months, with 20 or more stool examinations in each case. In two there has been a reappearance of the parasite, and in one of these two dysenteric symptoms have recurred.

The dosage of terramycin in the five cases of typhoid ranged from 43 gm. in 12 days to 98 gm. in 22 days. Three of the patients became afebrile in an average period of four and one-half days, but there was no evidence of response in the other two. There were no relapses in this series.

CONCLUSIONS

The therapeutic results in this small series suggest that terramycin is curative in epidemic typhus, will prove useful with limitations in acute amebic dysentery, and, contrary to previous reports, may be effective in some cases of typhoid.

Navy Medical Research Unit.

LABORATORY-ACQUIRED INFECTIONS

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and
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Although numerous individual case reports of laboratory-acquired infections have appeared in the literature, few studies have given any indication of the magnitude of this problem as it relates to the occupational health of laboratory workers. As a matter of fact, until recently little consideration at all has been given to the need for adequate protection of personnel who come in daily contact with disease-producing agents. By means of a questionnaire circularized to 98 laboratories in the United States, Meyer and Eddie [1] assembled pertinent information regarding laboratory infections due to Brucella. From published reports and personal communications we collected data regarding the occurrence of viral infections contracted in laboratories in the United States and elsewhere in the hope that such information would indicate where the greatest need for caution exists in work with viruses.[2] In all, 222 cases with 21 deaths were summarized. In a more recent extensive survey we recorded a total of 1,342 infections caused by a variety of disease-producing agents, and presumably acquired as a result of laboratory work in the United States during the last two decades.[3] A condensed summary of these findings is presented in Table 1. In each group of infectious agents there is at least one which outnumbers the others as the

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cause of laboratory infections. Brucellosis, hepatitis, Q fever, amebiasis, and coccidioidomycosis headed the list in their respective categories. Of the 1,342 infections disclosed by means of the survey, 39 were fatal. The highest proportion of fatalities occurred among the viral diseases, in which 4.5% resulted in death.

INFECTIOUS AGENTS

Brucellosis, tuberculosis, tularemia, typhoid fever, and streptococcal infections accounted for 72% of the bacterial infections and 31% of infections due to all types of agents. With the exception of Pasteurella tularensis these are agents which are extensively handled in many laboratories. Considering the relatively small number of laboratory workers who come in contact with P. tularensis, the 65 cases of laboratory-acquired tularemia would indicate a high theoretical attack rate. The large number of infections due to members of the Brucella group of micro-organisms would support the general contention that these organisms are eminently dangerous to the bacteriologist.

A large proportion of the 95 cases of hepatitis have occurred in recent years. That this disease exists as an occupational hazard for physicians, nurses, technicians, and other persons handling human blood or blood products has been emphasized by several investigators [4] who suggest that these infections should be regarded as compensable under industrial insurance. Hinton [4d] calls attention to acute infectious hepatitis as a hazard for workers in blood-testing laboratories. Several institutional outbreaks account for a large proportion of the cases of Q fever.[5] None of the 18 cases of amebiasis, which outnumber the other parasitic infections presumably acquired in the laboratory, could definitely be established as having originated in the laboratory. It is of interest that the single case of accidental infection caused by Leishmania donovani is believed to be the only reported case of leishmaniasis originating in the United States and the only reported case of an accidental infection in a laboratory worker due to this parasite.[6] Cases of laboratory-acquired coccidioidal infection are reviewed by Smith,[7] who emphasized the hazard of acquiring this and other mycotic infections in the laboratory, and suggests that the environment of a laboratory in which Coccidioides is handled is comparable to that of a coccidioidal endemic area.

Table 1.—*Distribution of Cases of Laboratory Infection According to Type of Personnel and Work Performed*

		Personnel Involved				Types of Laboratory Work Involved				
Type of Infection	No. of Cases	Trained Scientific Personnel†	Students	Animal Caretakers, Janitors, and Others	Other Personnel‡	Diagnostic	Research	Production of Biologics	Classwork	Combination of Activities
Bacterial	775 (19)*	570	63	89	47	333	132	5	29	276
Viral	265 (12)	218	0	23	0	86	81	20	0	78
Rickettsial	200 (6)	149	0	15	15	3	67	0	0	130
Parasitic	39	37	0	1	1	16	17	0	0	6
Fungus	63 (2)	36	0	4	23	17	11	0	0	35
Total	1,342**	1,010	63	132	86	455	308	25	29	525

* Figure in parentheses indicates number of deaths.
† Including research assistants, professional and technical workers, and graduate students.
‡ Including clerks, maintenance workers, occasional visitors, and others.
** Of these, 51% were definitely acquired in the laboratory; 40% were probable and 9% were possible laboratory infections.

Table 2.—*Sources of Laboratory-Acquired Infections*

							Known Accidents					
Type of Infection	Clinical Specimens	Autopsy (Including Known Accidents)	Aerogenic	Contact with Infected Animals and Ectoparasites	Worked with Agent	Handled Discarded Glassware, and Other Apparatus	Involving Needle and Syringe	Pipetting	Spilling and Spattering of Viable Organisms	Injury with Broken Glass, and Other Apparatus	Bite of Animal or Ectoparasite	Total
Bacterial	83	92	23	82	164	15	40	29	30	29	18	146
Viral	75	6	25	27	67	0	8	4	13	3	2	30
Rickettsial	0	0	89	25	27	4	6	0	3	1	5	15
Parasitic	17	0	1	5	6	0	1	0	2	0	6	9
Fungus	0	0	35	0	10	1	2	0	4	1	1	8
Total	175	98	173	139	274	20	57	33	52	34	32	208*

* In 7 additional cases the nature of the accident was not indicated.

DISTRIBUTION OF INFECTION AMONG LABORATORY AND OTHER WORKERS

It can be seen that by far the largest proportion of infections occurred among professional and technical workers, research assistants, and graduate students. Only 63 instances of infection were reported among undergraduate students or medical or veterinary students, and 132 occurred among nontechnical personnel including animal caretakers, janitors, and dishwashers. Hinton [4d] reports that 50% of those engaged for more than one year in washing glassware or other articles containing blood were infected with the agent of acute infectious hepatitis. Three cases of Q fever occurred in laundry workers handling laundry contaminated in the laboratory.[8]

At least 86 infections occurred among persons indirectly associated with work involving infectious agents, such as clerical and maintenance workers and occasional visitors. The first known human infection with the agent of Q fever in the United States occurred in a scientist who was visiting a laboratory engaged in work with the agent.[9] Another infection with this agent was acquired in a similar manner.[10] Smith [7] also refers to the occurrence of coccidioidal infections acquired by visitors to his laboratory.

It is evident from the results summarized in Table 1 that the greatest number of infections occurred in persons engaged in diagnostic work. This does not imply that this type of work involves the greatest risk, since it is obvious that more persons are engaged in diagnostic work than in other types of laboratory activity. At least 308 infections occurred among those known to have been associated with research activities. The small number of infections reported among persons concerned with the production of biologics probably represents only a small proportion of those which have occurred. Of the 29 infections resulting from classwork, 13 were typhoid fever. In many instances an infection occurred in a person involved in a combination of activities including the production of biologics and research or diagnostic work.

TABLE 3.—*Estimated Incidence of Laboratory-Acquired Infections in Various Types of Laboratories and Among Various Types of Personnel*

	Estimated Average No. of Persons at Risk Annually	No. of Infections Recorded in 20 Yr.	Attack Rate Per Yr. Per 1,000
Type of Laboratory			
Research institutes	2,948	267	4.1
Public health laboratories	12,157	169	0.7
Hospital laboratories	36,212	428	0.6
Biologic manufacturers	5,022	54	0.5
Agricultural and veterinary schools and experimental stations	10,145	91	0.5
Colleges and medical schools	45,641	281	0.3
Clinical laboratories	8,788	41	0.2
Total	120,913	1,334	0.5
Type of Personnel			
Trained scientific personnel	50,393	1,005	1.0
Animal caretakers, janitors, dishwashers	15,134	132	0.4
Students (not engaged in research)	51,005	63	0.1
Others	4,381	86	1.0
Total	120,913	1,286*	0.5

* In 48 cases the occupation was not indicated.

In Table 2 the probable sources of the laboratory-acquired infections are summarized. In a large proportion of instances the source was not known, yet there is indication that the person had worked with the agent concerned. At least 173 infections seemed to result from aerogenic transmission of the agent, though in many instances this could not be definitely established. Contact with infected animals and ectoparasites accounted for more infections than did the handling of discarded glassware and other apparatus. The 98 infections which resulted from postmortem examinations of human beings included known accidents. Many of the known accidents, however, involved self-inoculation or spattering of infectious material while using a needle and syringe. The second largest group of accidents resulted from the spilling and spattering of viable organisms through careless handling of culture flasks and other equipment. At least two psittacosis infections resulted from handling broken vials of lyophilized virus. Seven infections are attributable to the use of the Waring Blendor; two of typhus and one of rickettsialpox occurred in the absence of known accidents, while three infections with psittacosis virus and one with typhus Rickettsia were due to known accidents with this apparatus. Of the 33 known accidents resulting from the aspiration of infectious material through pipettes, 11 resulted in typhoid. Most of the 32 accidents resulting from the bites of animals or ectoparasites occurred among the rickettsial diseases. Accidents which result from the handling of broken glass, and other apparatus occurred largely among dishwashers.

In order to obtain a reasonably accurate impression of the risk of infection involved in laboratory work it is necessary to consider the number of instances of laboratory-acquired infection in proportion to the total number of workers at risk who escape infection. Questionnaires used in the survey were designed to obtain information regarding total numbers of laboratory personnel both in laboratories where no infection had occurred as well as in those reporting cases. Of the 4,472 questionnaires sent out, 2,143 were returned. In 1,662 of these the total average annual number of all kinds of laboratory workers in contact with infectious materials reported was 33,587. In an attempt to use this figure as a basis for arriving at a reasonable estimate of the total population at risk, it was necessary to make certain assumptions. If one assumes that 75% of all laboratories in the United States received questionnaires and that the number of persons reported by the 1,662 laboratories represents a proportionate sample of the total number of persons involved, then the average annual number of persons at risk for the past 20 years would be 120,913. By making similar assumptions it was possible to arrive at an estimate of the number of persons working in various types of laboratories and in different kinds of activity.

When the number of cases of infection recorded was considered in relation to the estimated number of persons at risk, the attack rates indicated in Table 3 were obtained. These rates are at best rough estimates, but they probably approximate the relative risks in the various situations indicated. As might be expected, the highest attack rate was found in institutions devoted almost exclusively to investigative work in which an individual may be exposed to the danger of infection with a given agent daily for prolonged periods. In teaching institutions the low rate among students who come in contact with infectious agents only in classwork is offset by the higher rate among persons working in research laboratories in the same institutions. The rate for clinical laboratories not associated with hospitals is low, probably because many of these are small laboratories where an individual may spend a large portion of his time working with materials that are noninfectious.

The attack rates in Table 3 were calculated on the basis of the presumed laboratory-acquired infections that have come to our attention. Additional infections of which we have no knowledge have certainly occurred. This fact would tend to make the calculated rates lower than they should be. It is also obvious that the rate will vary according to the type of agent being handled. It is interesting to note that the theoretical attack rate suggested by Wenner and Paul [11] for poliomyelitis presumably acquired in the laboratory is comparable to the attack rate indicated in Table 3 for research institutes.

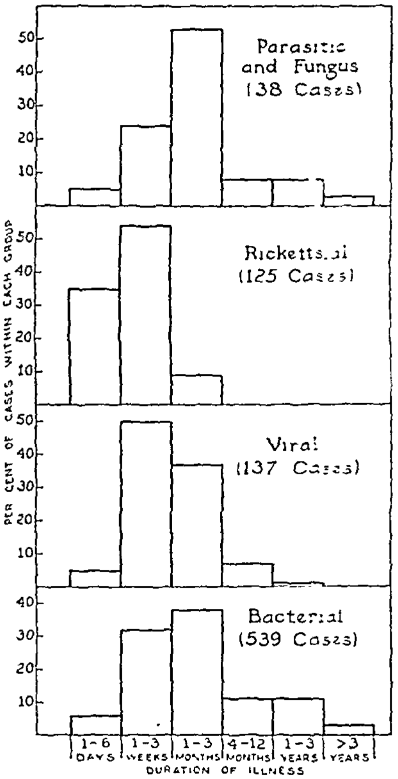
The duration of illness is a matter of considerable importance not only to the laboratory worker but also to employers. Such information was provided either in the questionnaires returned or in published records in 839 instances of nonfatal infection. The distribution of these infections with respect to duration of illness is shown in the figure. Among those infected with bacteria, 63% were ill for one month or longer. The distribution of parasitic and fungus infections is similar. The illness lasted as long as a month in 45% of the viral infections and in only 9% of the rickettsial infections. The longer duration of bacterial infections is in part owing to cases of brucellosis and tuberculosis. One contributing factor in the relatively short duration of rickettsial illnesses is the fact that a number of these infections occurred in immunized persons. It is apparent from this analysis that the time lost from work has been considerable. An average of 65 days was lost from employment by the 16 patients with homologous serum jaundice reported by Trumbull and Greiner.[4b] The economic loss involved for the patient with coccidioidomycosis is emphasized by Looney and Stein.[12] One patient was confined to a hospital for a period of 17 months.

CONDITIONS UNDER WHICH INFECTION MAY OCCUR

The results of the survey indicate that infection may occur under conditions that have, until recently, been considered innocuous. Investigations conducted at Camp Detrick, Md., and elsewhere indicate that aerosolization of infective agents may create unrecognized hazards.[13] By using sieve-type air samplers placed around the laboratory working area, investigators at Camp Detrick were able to determine that bacterial aerosols were released during such common laboratory procedures as the removal of stoppers from dilution bottles, removal of wet plugs from broth culture tubes, and the removal of infectious material from a vaccine bottle by means of a hypodermic syringe. It has also been shown that bacterial aerosols are produced during the process of pipetting, pouring, and vigorous agitation of dilution blanks. The production of aerosols by these and other laboratory procedures has been demonstrated by means of high-speed photography in studies conducted by Johansson and Ferris.[13a] The expulsion of a stream of liquid from a syringe while inoculating the exposed chorio-allantoic membrane of the developing chick embryo, or the intranasal inoculation of experimental animals, may cause the formation of aerosols which may bring about human infection by way of the respiratory tract. Numerous infections have no doubt occurred through the aerosolization of contaminated bedding in animal cages. Stein and Rogers [13d] demonstrated that viable spores may escape into the atmosphere when suspensions of Bacillus anthracis or Bacillus cereus are heated in open containers. More recently these investigators [13e] showed that viable bacteria or viruses may be present in the vapor removed by high vacuum desiccation from frozen suspensions of biologic materials, a procedure now widely used in many laboratories.

It is apparent from these data that aerosolization of infective material resulting in the aerogenic transmission of disease-producing agents must actually account for a larger proportion of the infections than is indicated by the survey. Recognized accidents, for example, seem to account for only a small proportion (16%) of infections, and many (274) infections which occurred in persons who were known only to have worked with a given agent were undoubtedly aerogenic.

Even though many pathogens are known to decrease in their virulence for the natural host after a number of animal passages, one must maintain continuous vigilance against laboratory infections. A number of incidents serve to emphasize the fact that many disease-producing agents retain their virulence for man even after many animal passages. There is evidence, for example, that the Nichols strain of Treponema pallidum has retained its virulence for man after repeated rabbit transfers over a period of many years.[14] Similar evidence is available for a number of viral agents which have been through numerous animal passages.[15] On the other hand, each of the three cases of poliomyelitis acquired in the laboratory occurred in persons exposed to virus recently isolated from human cases.[15a] No infections occurred at a time when the majority of work on experimental poliomyelitis was carried out with strains that were well established in the monkey.[11] Repeated passage of many viral agents in chick embryo tissues may result in decreased virulence for the natural host.[16]



Percentage distribution of cases according to duration of illness.

Exposure to pathogens or even accidents with infectious materials do not necessarily result in laboratory infections. Tager and his associates,[17] for example, have escaped even inapparent infection while doing investigative work with Coccidioides immitis. In at least one instance no overt infection followed introduction of sputum containing tubercle bacilli into the mouth, but the tuberculin test subsequently became positive.[18] A similar situation resulted following the ingestion of living Brucella organisms; no overt infection resulted but the development of a positive skin test indicated inapparent infection. In a few instances laboratory workers showed no evidence of illness following the aspiration of viable typhoid bacilli. However, although the accidental ingestion of viable typhoid bacilli will usually result in an overt though modified infection even in the immunized individual, there is evidence that prompt prophylactic use of sulfadiazine followed by chloramphenicol may prevent the development of clinical signs of infection.[19]

In a number of instances a disease-producing agent was first recognized as a cause of disease in man as a result of a laboratory infection. Actually the first known human infection in the United States with the agent of Q fever occurred in a laboratory in which the agent had been isolated from ticks.[9] Even the most recent addition to the Rickettsia group, Rickettsia akari, and to the viral group, the Coxsackie virus, have been responsible for laboratory infections.[20] The discovery of a new neurotropic virus resulted from the death of a research worker who was bitten on the hand by an apparently healthy monkey while engaged in experimental work on poliomyelitis. This agent, which has been designated B virus,[21] has since been responsible for at least two fatal cases of ascending myelitis in laboratory workers handling monkeys.[22] The B virus is carried by monkeys in much the same manner that the virus of herpes simplex, to which it is related antigenically, is carried by human beings.[23] Laboratory infections with the virus of louping ill were the only known human cases until two naturally acquired cases occurred in 1948.[24] Similarly, the first definite human infection with the causative agents of Aujeszky's disease (pseudorabies),[25] Newcastle disease of fowl,[26] D virus,[27] Vibrio fetus,[28] and more recently vesicular stomatitis [29] occurred as laboratory infections. A single human infection probably resulted from the bite of infected black flies (Simulidae) used in Leukocytozoon transmission experiments in ducklings.[30] The first human infection with the Mengo encephalomyelitis virus occurred in the laboratory where this agent was originally isolated from rhesus monkeys, the mongoose, and from mosquitoes.[31] Although Serratia marcescens is ordinarily considered to be nonpathogenic,[32] at least four infections occurred in laboratory workers incidental to exposure to aerosols produced with this organism.[33]

RECOMMENDED SAFETY MEASURES

The numerous cases of proved laboratory-acquired infections should impress on clinicians and hospital administrators the importance of giving consideration to the health and welfare of laboratory workers who are engaged in the handling of infectious material. Safety measures are being recommended [34] and numerous devices are being invented to protect laboratory personnel and to minimize infections which result from the production of infectious aerosols. An important item is the provision of adequate animal inoculating boxes or transfer cabinets properly equipped with ventilating devices for the control of aerosols. A number of workers have developed safety equipment of this type.[35] To minimize the risk to laboratory workers who inoculate animals by the intranasal route, van den Ende [35a] designed an inoculation box which prevents the distribution of infective droplets into the air during this type of operative procedure. The device, which serves for studying the extent of pollution of the air frequently accompanying intranasal inoculations, consists of a constant draft produced by a gas burner with incineration of the contaminated air. Using this cabinet as a basis, Shepard and his associates [35b] described a protective cabinet for the infectious-disease laboratory designed especially to house electrical equipment such as Waring Blendors and mechanical mortars which may be a source of danger. A protective cabinet for use by investigators studying Coccidioides immitis and other infectious fungi was designed by Keeney.[35c] Although the highly infective nature of the chlamydospores of C. immitis is recognized, and several infections are known to have occurred in persons who were not working directly with the fungus,[36] no known infections have occurred in the laboratory where this cabinet had been in use for at least two years, and skin reactivity to coccidioidin developed in none of the personnel. Smith,[7] however, had little success with a cabinet of similar design.

Recognizing the hazard involved in experimental work with plague bacilli, Meyer and his associates [37] constructed an inoculation chamber to protect the experimenter from risk of exposure following intranasal animal inoculation. Animals remain in the chamber which is treated with a propylene glycol aerosol before they are removed to a special isolation room. Smith [7] is using a protective chamber similar to that described by Meyer and his workers [37] when handling cultures of Coccidioides immitis on solid media especially when susceptibles are present in the same building. To limit the hazard of working with this agent, Looney and Stein [12] seal culture plates suspected of containing this fungus and examine them after autoclaving the plate. Several others recommended moistening the culture on solid media before making transfers.[38] One of these investigators [38b] wets the fungus with tween® 80 in saline before making transfers to solid media. Another [38c] moistens the organism which is cultured on slants by plunging through the cotton plug a sterile needle attached to a syringe containing saline, thus reducing the chance of liberating a cloud of spores when the plug is removed.

Aspiration of infectious fluids through a pipette is one of the well-recognized, obviously dangerous mishaps. Several devices have been developed to reduce the dangers of getting such infectious fluids into the mouth. A common practice is to plug the proximal end of the pipette with absorbent cotton. A pipetting device designed by Wedum [39] obviates the need for direct oral suction on the pipettes and is better than the commercially available pipettes designed for this.

The 80 cases of viral hepatitis resulting from diagnostic work originated mostly from specimens of blood submitted for serological or chemical examination. It has been suggested that most of these infections can be prevented through the use of rubber gloves [4a, d] and that all specimens of blood, urine, and feces from a patient with viral hepatitis should be labelled "infectious" and "handle cautiously." [40] To minimize infection with Coxiella burnetti among laboratory personnel, Meikeljohn and Lennette [41] have eliminated such procedures as centrifuging and blending, and use separate buildings or cubicles for infected animals. In addition, they maintain triethylene glycol aerosols in workrooms and in animal houses. These procedures, in addition to immunization with a C. burnetti vaccine, have virtually eliminated the hazard of working with this agent.

Prophylactic immunization is available for many of the agents that have been responsible for laboratory infections. Immunization procedures, however, do not necessarily eliminate the risk of infection though there is evidence that infections which have occurred in immunized persons tend to be less serious.[42] In at least one instance no infection followed the accidental ingestion of approximately a billion virulent typhoid bacilli in a previously immunized person who received sulfadiazine and chloramphenicol shortly after the accident had occurred.[10] Kadull and his associates [42c] present convincing evidence of the efficacy of vaccine prophylaxis in tularemia among laboratory workers. Immunization with psittacosis virus vaccine has been suggested, but the effectiveness of this procedure has not been definitely demonstrated.[43] Immunization is recommended for those persons undertaking work with equine encephalomyelitis viruses[44] or with the agent of Q fever.[41] Also, BCG may afford some protection. Stokes and his associates [45] recommended prophylactic treatment with periodic injections of immune globulin in persons exposed to specimens from patients with viral hepatitis. The procedure is used in at least one laboratory processing blood.[45]

The prompt use of currently available chemotherapeutic agents should insure recovery and shorten the time of illness in the case of many infections.[46] Administration of sulfadiazine in pneumonic plague,[47] penicillin in anthrax,[48] and chloramphenicol in Q fever [10] are examples of successful therapy in laboratory infections.

SUMMARY

Although the problem of occupational hazards has been recognized in industry for many years, there has been until recently no recognition of these hazards as they apply to laboratory workers. Recent surveys by the authors have indicated that persons who work in research and diagnostic laboratories may be exposed to hazards of infection far beyond those met in ordinary living; the data in these surveys disclose numerous dangers frequently unrecognized in the laboratory.

Laboratory infections have been acquired from all categories of infectious agents—bacteria, viruses, rickettsiae, parasites, and fungi. They have been acquired by professional and technical workers, students, clerical and maintenance workers, and even by visitors to laboratories; and the resulting illness has varied in severity from inapparent infections to those with a fatal outcome.

Efforts are being made in numerous laboratories throughout the country to develop safety measures to reduce the incidence of these infections. Various types of ventilating devices, inoculating cabinets, and techniques for the handling of infectious material are in use in many institutions. In some laboratories available vaccination procedures are in routine use. Laboratory workers should be acquainted with the potential sources of infection and encouraged to make use of available safety measures wherever indicated.

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RADIOISOTOPE HAZARDS AND PROTECTION IN A HOSPITAL

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In January, 1949, the Oak Ridge Institute of Nuclear Studies organized a Medical Division with a primary function of exploiting radioisotopes in the field of medicine. At that time many medical schools had experience in using radioiodine and radiophosphorus, but there was little experience available in the large-scale use of radioisotopes. In a few instances three or four different radioisotopes had been used, usually in small volume, but only in a very few places had many different isotopes been used in significantly large volume to produce hazardous operations. Thus, the problems involved in the use of a large number of radioisotopes simultaneously in a large number of patients were relatively unknown. Most of the anticipated problems were based on the exposures encountered in the production and research facilities of the Atomic Energy Commission and were of a totally different nature than those of a hospital-type operation: In general, they were experiences of protective problems, orders of magnitude beyond even the largest medical-type usage.

However, the problem is rapidly becoming more than that of a potential hazard. Since Aug. 2, 1946, when the Isotope Division of the Atomic Energy Commission began its isotope distribution program,[1] the distribution of isotopes for direct medical purposes has grown from a few shipments to well over 800 shipments monthly. This rapid growth of radioisotope usage explains the frequent revision of viewpoint on the design of processes and equipment. Ideas on how to handle radioisotopes are still in a state of flux, and sometimes the changes are disconcertingly radical. A current, pertinent example is the question of the best materials to be used for easily contaminated laboratory table tops. During 1950, stainless steel with a high polish was the accepted material. Such old-fashioned materials as alberene® soapstone were "out of the question." Nevertheless, a testing program during the past year seems to indicate that stainless steel is one of the most difficult of all materials to decontaminate while soapstone can be cleaned readily with a piece of emery paper. Under many conditions, a few inches of space are not critical, and with these few added inches soapstone absorbs radiation as effectively as does lead and acts as a shield in addition. It is very probable that within the next few years the relative usefulness of alberene® soapstone, lead, and stainless steel for various purposes may change considerably.

An equally radical change in opinion is developing around the design of hospital radioisotope wards. As long as only one patient receives a relatively small dose of radioiodine, no hazard is involved. However, when many

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Read in the Symposium on Occupational Health of Medical Personnel before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] AEC Contract Policy and Operations, United States Atomic Energy Commission, United States Government Printing Office, Jan., 1951, p. 30.

patients are being treated with different isotopes in relatively large quantities, a significant exposure hazard results. Under these conditions the question of shielding patients from the staff and from each other must be considered.

TABLE 1.—*Isotopes Used in the Medical Division, Oak Ridge Institute of Nuclear Studies, First Year of Operation, 1950-1951*

Radioisotope	Half-life	Shipments	*Quantity* (Millicuries)
Gallium ^{72}	14.3 hr.	158	10,920
Gold ^{198}	2.7 days	35	6,858
Iodine ^{131}	8 days	42	3,715
Cobalt ^{60}	5.3 yr.	5	2,220
Antimony ^{122}	2.8 days	15	267
Potassium ^{42}	12.4 hr.	1	125
Sulfur ^{35}	87 days	5	114
Phosphorus ^{32}	14.3 days	16	110
Hafnium ^{181}	46 days	4	100
Sodium ^{24}	14.8 hr.	10	90
Ruthenium ^{106}	1 yr.	4	50
Indium ^{114}	48 days	3	30
Manganese ^{54}	310 days	1	10
Cobalt $^{56-57}$	270 days	2	10
Carbon ^{14}	5,100 yr.	1	5
Nickel ^{63}	300 yr.	1	3
Zirconium ^{95}	65 days	1	1
Gallium ^{67}	78 hr.	1	1
Totals 18 Radioisotopes	....	305	24.629 curies

The medical program of the institute is chiefly concerned with the therapeutic value of radioisotopes in cancer therapy. This necessitates the use of relatively large doses of radioactivity. Concomitant studies relating to diagnostic and tracer use have brought about the use of a wide variety of radioisotopes. Thus, during the first full year of operation of the institute hospital, 18 different radioisotopes have been employed, totaling almost 25 curies of radioactivity (Table 1). The dosage in individual patients ranged from microcuries to almost a curie. This year's operation has provided a basis for discussion of the contamination and radiation protection problems to be encountered in a small hospital-type operation and designs for protective measures which appear to have practical usefulness.

POSSIBLE EXPOSURE WITHIN PATIENT AREAS

Of the total amount of radioactive substances brought into the hospital area, only a fraction create a potential hazard. During transportation, chemical preparation, and storage the activity is well shielded and the problems are mostly those of laboratory design and engineering. It is after the material is injected into a patient that the major problem arises.

It is too early to be dogmatic about whether or not a radioactivity exposure represents a hazard because there are too few data and too many opinions as to how much exposure should be allowed. But as a starting point in setting up regulations for personnel protection the recommendations of the Chalk River Conference on permissible doses were adopted.[2] The working assumption was that all personnel would spend the rest of their lives with some exposure to radioactivity. Therefore, for chronic exposure of the total body, the maximum permissib dose in the critical tissue (bone marrow) should be 0 rep per week. This is considered equivalent to 6.25 m liroentgens per hour, or 60 milliroentgens per worki day.

If personnel work only in levels of radiation lower th 6.25 milliroentgens per hour, there will be no questi of either moral or legal aspects of the hazards of radi tion exposure. Accordingly, the question that remains that of the practicability of carrying out normal hospi procedures under conditions giving doses no higher th this level and preferably giving the least possible exp sure.

When a patient has received a radioactive substan which emits gamma rays, it is possible to measure t exposure around the patient with reliable, standardiz instruments. When measuring a field of unknown radi tion it is proper to use an ionization chamber becau of its relative wave length independence. However, io ization chambers are less adaptable to untrained perso nel and the inaccuracies introduced with other metho are negligible in routine patient surveys. The instrume designed for use by the nurses of the institute's Medi Division (Fig. 1) is a portable Geiger-Mueller ty monitor powered by batteries mounted in a plastic co tainer. It weighs 6½ lb. (2.9 kg.). This survey met called the "Poppycock," has a light which flashes wi each count, a loud speaker which clicks, and a dial f reading exposures. By use of a spring switch the machi can be set for "prospecting" for low level exposure fiel or for surveying high level exposures. When "prospe ing," only the light and the speaker are operating, b when "surveying," the scale is in the circuit so as provide a means of estimating the level of radiatio

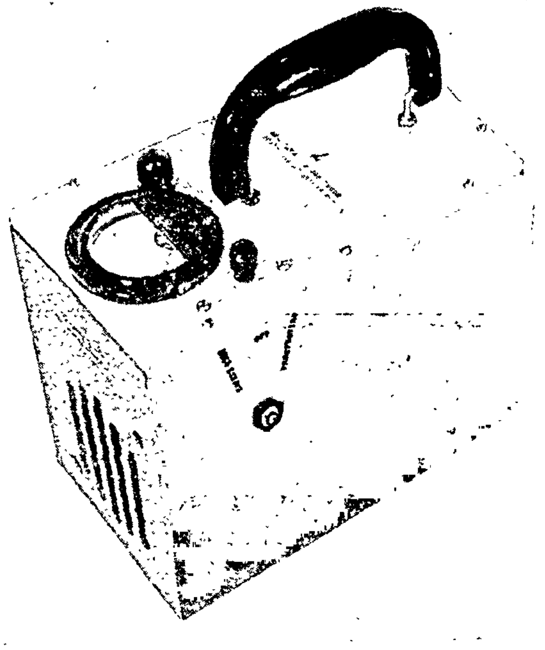

Fig. 1.—Nurses' radiation protection meter, "Poppycock," Oak Ridg Institute of Nuclear Studies.

Instead of calibrating the scale of the meter in milliroent gens, green, yellow, and red colors are painted on t give indication of tolerable, warning, and dangerou levels. When the pointer reads in the green area, th nurse has instructions that with most isotopes there ar *no* restrictions on work hours, visitors, and probably n restrictions on sample collections of urine, feces, blood, and linens. When the dial reads in the yellow area, there are no restrictions on work hours and visitors but there are probably some restrictions on sample collections from the patient. When the dial reaches the beginning of the red scale, the dosage is at 6.25 milliroentgens per hour. This point reads the only true calibration on the scale relative to radium. Beyond this point, there are time restrictions on working hours. Visitors must be restricted to short visits. All sample collections and waste materials must be monitored by a qualified person. In some cases the nurses themselves are qualified to use a standard survey meter to assess the extent of the restrictions.

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[2] Unofficial Notes from the Minutes of the Permissible Doses Conference held at Chalk River, Ontario, Canada, Sept., 1949. *This material* here quoted has been later amplified and in substance substantiated by the Inte[illegible]onal Commission on Radiological Protection, London, July, 1950. See [illegible]eonics 1:8 (No. 1) 28-37 (Jan.) 1951.

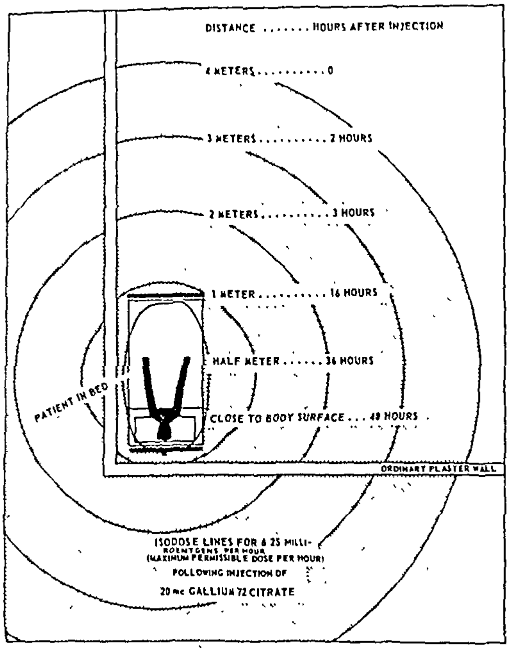
DISTANCE .... HOURS AFTER INJECTION
4 METERS.........0
3 METERS..........2 HOURS
2 METERS..........3 HOURS
1 METER..........16 HOURS
HALF METER......36 HOURS
CLOSE TO BODY SURFACE...48 HOURS
PATIENT IN BED
ORDINARY PLASTER WALL
ISODOSE LINES FOR 6.25 MILLIROENTGENS PER HOUR
(MAXIMUM PERMISSIBLE DOSE PER HOUR)
FOLLOWING INJECTION OF
20 mc GALLIUM 72 CITRATE

Fig. 2.—Maximum permissible isodose lines for 20 mc. gallium^{72}.

After a patient is given some radioactive substance, a line can be drawn around the patient at the points where the radiation in the air measures 6.25 milliroentgens per hour; this line is called the hourly maximum permissible isodose line (Fig. 2). Immediately after injection of 20 mc. of gallium 72 citrate, this isodose line is approximately a circle 4 meters from the center of the patient. Because gallium 72 has a very short half life (14.3 hours) and is excreted in the urine rapidly, this isodose line regresses toward the patient rapidly. In 2 hours the maximum permissible isodose line is 3 meters from the patient; in 16 hours the line is at 1 meter; after two days, it is close to the surface of the body so that there is little hazard to the nurses, aids, and orderlies carrying on ordinary hospital routines.

Most of the gamma emission of Ga^{72} is of high energy or "hard." About 25% of the gamma rays are over 2.5 mev; about 50% are over 2 mev. Ordinary hospital plaster walls provide almost no shielding; therefore, other persons must be kept away from adjacent hallways and ward rooms. Other patients getting radioactive therapy will probably receive only a negligible fraction of their own dosage from exposure to a gallium patient, but patients not under radioactive therapy must be shielded from active patients.

In another example, a patient received 200 millicuries of radiogold (Au^{198}) intrapleurally. Compared to gallium, Au^{198} emits a much softer gamma ray and fewer rays per disintegration. Hence, it is much easier to shield. Ordinary plaster walls have some shielding value but are not adequate with large doses. However, because its half life is longer (2.7 days), the maximum permissible isodose line regresses toward the patient much more slowly. In the example shown in Figure 3 the isodose line for 6.25 milliroentgens per hour was a meter from the patient a week after injection and did not approximate the body surface until two weeks had passed. During this time, according to definition, the area around the patient is an area of radiation hazard. Time spent close to the patient by any of the staff must either be reduced to a minimum and/or the patient shielded.

Shielding can be accomplished in many ways. Probably the simplest is to build the walls of certain rooms of dense concrete and use such rooms as private rooms. Under such conditions the problem is almost nonexistent in dosages used so far. A less expensive substitute for this ideal shielding is to erect a double layer of 4 in. (10 cm.) marble slabs up to the 6-ft. (182.8 cm.) level on critical walls. This was done in the Medical Division hospital in one critical area where a physician's office adjoins a private patient's bedroom. Another simple protective shield shown in Figure 4 is made of a 2 in. (5 cm.) slab of armor plate mounted on casters and upholstered. The large shield is 6 ft. long and 3 ft. (91.4 cm.) high; the small one is 3 ft. by 3 ft. When placed L-shaped around a patient's bed the radiation is reduced to negligible levels. Highly radioactive patients are placed along outside walls and are kept in bed during the period of greatest radioactivity. With an L-shaped shield added, the potential hazard is reduced to a minimum.

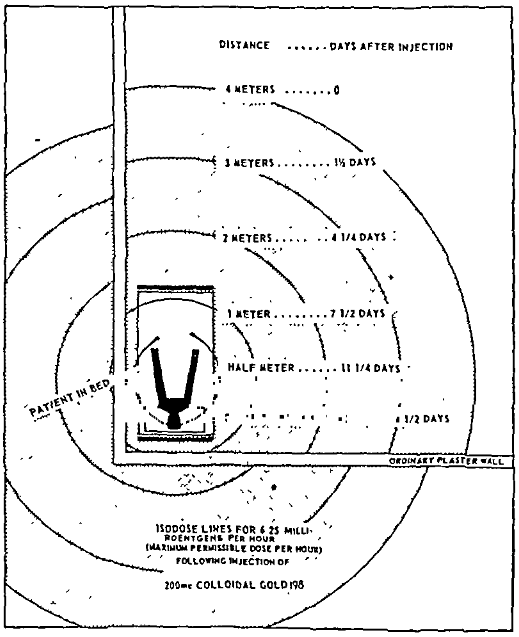
DISTANCE ...... DAYS AFTER INJECTION
4 METERS 0
3 METERS........1½ DAYS
2 METERS.......4 1/4 DAYS
1 METER........7 1/2 DAYS
HALF METER......11 1/4 DAYS
1/2 DAYS
PATIENT IN BED
ORDINARY PLASTER WALL
ISODOSE LINES FOR 6.25 MILLIROENTGENS PER HOUR
(MAXIMUM PERMISSIBLE DOSE PER HOUR)
FOLLOWING INJECTION OF
200mc COLLOIDAL GOLD 198

Fig. 3.—Maximum permissible isodose lines for 200 mc. gold^{198}.

The amount of radiation exposure to an attendant remaining close to the bed-side of high dosage patients is considerable. At approximately 1 meter from the patient during the entire course of intracavitary gold therapy, over 10 r of 400 kv. radiation was calculated. Hence, a nurse sitting next to the patient could be expected to absorb 1 r of total body exposure in three days. The nurse of a patient treated with 100 mc. of iodine would receive about 1 r of exposure in five days, and with 50 mc. of gallium the nurse could be exposed to 1 r in about two days.

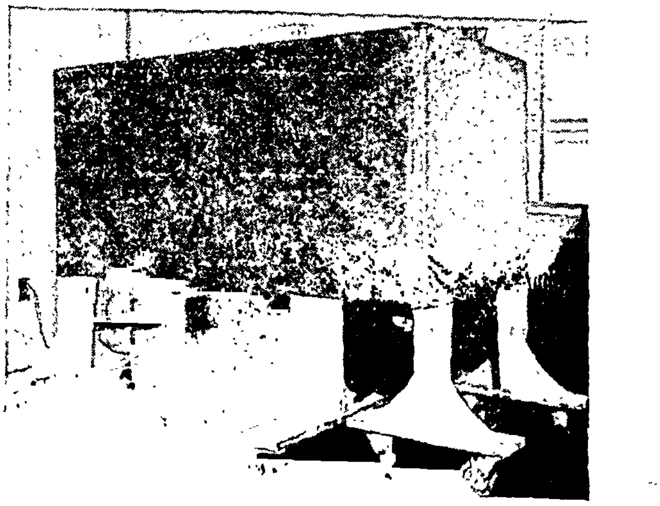

Fig. 4.—Movable bed shields for radioactive patients, Oak Ridge Institute of Nuclear Studies.

While such exposures may be of no immediate hazard if taken once and never repeated, they are intolerable as a working basis for personnel who make even a short-term career of handling radioactive patients.

ACTUAL PERSONNEL EXPOSURE

In the Medical Division of the Oak Ridge Institute of Nuclear Studies, every person wears some form of exposure measurement device. All personnel, including secretaries, visitors to patients, and janitors, wear the standard film badge. This is considered primarily a legal record of exposure and not a research tool. In addition, those persons exposed to considerable activity, such as nurses, processing technicians, and staff, wear pocket chambers which are read twice weekly by a health physicist, and a continuous record is kept. Selected personnel, those who are in close contact with large sources or who may be expected to have the greatest exposure, wear a direct reading pocket dosimeter. The latter are qualified to make their own decisions regarding exposure tolerances. In special circumstances such as surgical operations, autopsies, preparation of new compounds, and testing new equipment, palm and finger badges, wrist and forehead chambers, and other monitoring devices supplement these standard procedures.

A good example of the actual exposures received by various working classes of personnel is shown in Table 2. To construct the table a three-month period was considered, December, 1950, through February, 1951. During the period there was an average hospital load of 17 patients undergoing some type of radiation therapy. The isotopes brought into the hospital area, except for some long-lived materials already present, were 3.98 curies of Ga^{72}; 2.12 curies of Au^{198}; 1.11 curies of I^{131}; 0.04 curies of P^{32}; 0.02 curies of Na^{24}.

Only the routine film badge data are shown since all personnel wore the film badge. The films measure the total integrated dosage over a set period with readings for hard and soft gamma radiation; in this instance they are returned weekly. The open window reading is an index of the less penetrating radiation exposure and the shielded window is a better index of exposure to more penetrating radiation. By this method of measurement the maximum permissible dose is considered to be 60 milliroentgens per day for either reading.

The largest exposure was received by a staff chemist who processed the samples of Ga^{72} as they came from the reactor. The second largest exposure was to the chemistry technician helping him. The orderlies who spend most of their time caring for the needs of patients, and the technicians who handle the urine, feces, blood, and tissue samples received the largest routine exposures. However, in all cases, these exposures were considerably below maximum permissible levels. In comparison, the personnel of a busy routine diagnostic x-ray service in a nearby medical school received as much or more radiation than the institute personnel. This level is considered a normal condition in x-ray services and rarely occasions any comment.

A number of special measurements illustrate the hazard in nonroutine procedures. During a two and one-half hour operation to remove the left lung of a patient who had been given a 20 mc. test dose of Ga^{72} the surgeon and his first assistant each received a total of 400 milliroentgens to their hands according to film badges placed in the palms underneath their rubber gloves, whereas badges under their collars registered 30 milliroentgens. This difference is due in part to the rather energetic beta particles of Ga^{72} which have a maximum penetration of about 18 mm. of water. The anesthesist for this operation received total body exposure of 40 milliroentgens. In Table 3 four other operations are reviewed. When most of the isotope is confined to one location as in intra-abdominal therapy with Au^{198}, the hands of the surgeon

TABLE 2.—*Exposure of Selected Personnel Measured by Routine Film Badges over a Three-Month Period* *

Type of Work	No. with Blank Badge †	No. Exposed	Average Milliroentgens/Day Exposure: Open Window	Average Milliroentgens/Day Exposure: Shielded Window ‡	Largest Average Exposure in Group, Milliroentgens/Day
From Medical Division, Oak Ridge Institute					
Staff (M.D. or Ph.D.).....	3	10	9.1	9.1	55.1
Part-time staff............	1	3	2.0	3.9	10.9
Technicians	2	9	10.3	11.9	28.5
Nurses	0	12	4.9	3.9	10.8
Nurses aids................	0	6	4.1	3.7	5.9
Orderlies	0	2	12.2	11.4	15.9
Maids	0	2	1.8	1.8	3.1
Maintenance men..........	4	3	0.6	0.6	0.6
Administrative	1	4	1.5	1.3	4.2
Total personnel..........	11	51	6.1	6.1	55.7
From Nearby Medical Schools					
Radiology technicians.....	11	5	7.2	4.8	19.0
Radiologists (badge inside apron)	0	2	11.6	4.6	7.9
Radiologists (badge outside apron)	0	2	112.0	6.5	121.0

* Maximum permissible exposure by this method is 60 milliroentgens per day.

† When the exposure is less than can be measured by photographic densitometry, the badge is considered a blank and is not included in the average exposure data.

‡ Film shielded from beta and soft scattered radiation by 1-mm. cadmium shield.

can receive a significant dose. The actual radiation per disintegration is not as great as with gallium, but the quantity of radioactivity is disproportionally greater. In the second and fifth examples in Table 3 the gold was confined to the lesser omental space; in the third example it was diffusely spread over the entire peritoneum. The surgeons here received somewhat more than the "allowable" hand dosage, which is generally taken to be about five times the total body dosage. However, because such operations are not done routinely, the actual risk is minimized. In contrast, a far greater risk is in a standard implantation of radium needles shown in example 4. In another series of measurements, the average exposure to the unprotected neck and right forearm of a radiologist during two weeks of routine fluoroscopy was about 84 milliroentgens per day. Two persons holding a baby under a 250 kv. therapy machine during three minutes exposure of 200 r each measured 60 milliroentgens on pocket chambers placed under lead aprons. It is generally true that even large amounts of radioisotopes can be handled with greater safety than is now the case in many standard x-ray and radium services.

TABLE 3.—*Exposure to Radioactivity During Surgical Operations (Milliroentgens Total Exposure to Hands and Body)*

	Surgeon			First Assistant			Assistant or Anesthetist		
Operation	Left Hand	Right Hand	Total Body	Left Hand	Right Hand	Total Body	Left Hand	Right Hand	Total Body
1. Laparotomy; 5 mc. Gallium^{72}, ½ hr. exposure time; diffuse source	Neg.	Neg.	10	Neg.	Neg.	10	..	..	10
2. Laparotomy; 100 mc. Gold^{198}, 2½ hr. exposure time; source in lesser omental space	155	75	40	35	35	10	50	..	10
3. Laparotomy; 100 mc. Gold^{198}, 2 hr. exposure time; source in peritoneal cavity	490	180	80	290	600	80	30	..	10
4. Implantation of Ra needles; 45 mc. radium; ½ hr. exposure time	760	450	90	360	470	90	..	..	..
5. Autopsy; 102 mc. Gold^{198}, 1⅓ hr. exposure time; source in peritoneal cavity	150	140	60	...	...	35	..	..	..

During the chemical preparation of a radioisotope, exposure of the hands is not ordinarily registered in the routine personnel monitoring devices. For example, during the hour it took to prepare four ampules of Ga^{72} citrate, the chemist received an exposure of 530 milliroentgens on his right hand and 355 milliroentgens on his left hand. If such exposures occur during a routine operation which must be repeated a number of times each week, the equipment must be redesigned to afford better shielding and the chemist must reeducate himself to modified procedures.

A common statement is that the injection of a radioisotope can be done more safely without shielding over the syringe if the operator moves fast. At best, however, the hands are exposed to measurable amounts of radiation. The injection of 1 mc. of gallium from an unshielded syringe over 50 seconds gave 13 milliroentgens to the left hand and 15 milliroentgens to the right hand. During the injection of 20 mc. of radiogold over 60 seconds, using an unshielded syringe, the total exposure was 60 milliroentgens to the left and 50 milliroentgens to the right hand. Radioiodine gives about the same exposure as radiogold, and even radiophosphorus gives off bremsstrahlung (soft x-rays) which can help build up hand exposure to supratolerable levels. If these so-called rapid procedures are carried out once or twice a week and are the only exposures that the hands receive during the week's work, there is little or no hazard to using unshielded syringes. But when the operation is just one part of other routine exposures, the maximum permissible dose accumulates rapidly and is exceeded quickly.

EXAMPLES OF SAFE HANDLING EQUIPMENT

In order to assure minimal exposure during routine operations, many devices have been designed. One of the distinguishing characteristics of radiochemical laboratories is a drawer full of homemade remote handling equipment and shielding gadgets. Many of these are better designs for specific purposes than any commercial items, for the obvious reason that the commercial houses cannot pick out a sensible compromise from the profusion of demands for specific tasks. However, now that radiochemical procedures are becoming relatively standardized, the number of commercially available devices for reducing radiation exposure is constantly increasing. The specific items described below are designs or developments of the Oak Ridge Institute of Nuclear Studies. They are not necessarily new and original and are adaptations of many persons' ideas. They have all been thoroughly tested and found adequate, and they are now commercially available to anyone.

The Shielded Syringe Holder.—The shielded syringe holder shown in Figure 5 was designed to take the maximum dimensions of the standard 10 cc. B-D glass tip or Luer lock syringes. It has two main parts, a lead shield for the syringe barrel and a plunger holder. The shield is a 5-lb. (2.3 kg.) chrome plated, hollow, lead cylinder with a projecting 4-in. (10 cm.) disk of ¼ in. (0.64 cm.) lead. The function of the disk is to shield the left hand A small slot in the cylinder end takes a plastic translucent prism and mirror, by means of which the contents of the syringe are visible at a 90 degree angle to the slot in the lead shield. A small set screw holds the plastic prism in position; it is removed during autoclaving. The plate closing the end of the cylinder is removable. On the plunger end is a thumb screw which when tightened locks down the plunger in a set position to prevent accidental discharge of syringe contents.

The plunger assembly is designed to clamp the top of the plunger so that the metal part becomes merely a rigid extension of the plunger itself; this assures perfect control of the injection. The plunger assembly also contains a pen-type flashlight battery and bulb (both sealed in); the light from this is transmitted down the plunger so as to improve greatly observation of volumes in the syringe.

The procedure for using the syringe holder is as follows: A known amount of radioactive substance is concerned, physician-patients leave something to be desired. Dr. W. M. Sams made the illuminating remark, "Physicians in my community suffer contact dermatitis from self-medication more frequently than they do from occupational exposure." Most dermatologists would agree with this.

Dr. Livingood pointed out that "I have found it necessary to hospitalize a fair number of these people in order to work out all of the etiologic factors because, for one thing, it is very difficult to obtain complete cooperation from physicians without hospitalization."

The average doctor in whom an eruption develops treats (or often overtreats) the condition himself. As a rule, he tends to change from one remedy to another in rapid succession because of failure to obtain immediate relief and because of personal doubt in his own diagnosis. Unfortunately, often these remedies consist of the detail-man's latest "miracle antibiotic," "nontoxic antihistaminic" or "omnipotent adrenal steroid." At times, the results are far from happy.

SUMMARY

1. Physicians are exposed to many irritating chemicals and infections in their professional routine.
2. Contact dermatitis is the commonest type of injury suffered, and among its more frequent causes may be listed scrubbing, gloves, local anesthetics, antiseptics, and antibiotics.
3. Psychosomatic influences may be important in such cases.
4. Infections are comparatively uncommon, but may be acquired accidentally from patients. A series of 27 cases of extragenital chancres in physicians was gathered during this survey.
5. Radiodermatitis is still occurring in physicians, but it is preventable and its occurrence is inexcusable.
6. Injuries are trivial and comparatively unimportant.
7. It is possible that physicians leave something to be desired as dermatological patients.

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TUBERCULOSIS IN MEDICAL STUDENTS AND NURSES

H. D. Lees, M.D., Philadelphia

The very significant decline in mortality from tuberculosis in recent years stands out as one of the major achievements in the field of public health. One of the most encouraging features of the present-day picture is the more rapid rate of decline which has prevailed since 1945. Provisional figures for 1950 indicate the death rate to be 15% below that of the previous year. During the past five years tuberculosis mortality has declined approximately 42%. Since this presentation deals with the problem of tuberculosis in young adults, we must not overlook the very favorable mortality experience of this particular age group. In 1948 the number of deaths in the age group 15 to 24 years was 26.2% below that of the previous year. This very significant improvement in tuberculosis mortality bears a very direct relationship to the marked decrease in prevalence of tuberculous infection. Extremely low levels of infection have been reached in some areas. Jordan [1] has conducted a most comprehensive program of tuberculosis case-finding in Minnesota over a period of 20 years. He reports that in 128 schools in which tuberculin was applied to the entire enrollment not a single child reacted to the test. The tuberculosis death rate in this area is less than half of the rate for the entire country. At the University of Pennsylvania, 48% of undergraduate freshmen were tuberculin reactors in 1931 as compared with 18% in 1950. This is a reduction of 62.5%. Durfee [2] reported that the prevalence of tuberculous infection among college students in all sections of the country has declined 54.8% during a period of 15 years. Continued progress in our ability to control tuberculous infection during the next 10 years may conceivably result in a tuberculosis death rate of 12 or below by 1960.

TUBERCULOSIS IN MEDICAL STUDENTS

At present there are many encouraging aspects in the problem of tuberculosis in medical students. Several schools have succeeded in practically eliminating tuberculosis as a health hazard among their students. This can be accomplished only when we are able to identify those phases of training which provide unduly high infection rates and then by providing effective barriers against these sources of infection. The tuberculin test has permitted us to establish quite definitely the time of primary infection by its use at rather frequent intervals. It has been the most valuable procedure available to us in studying the epidemiology of tuberculosis in medical and nursing personnel.

The University of Rochester Medical School has had a rather unique experience, and a most gratifying one, in dealing with tuberculosis among its students. In 1948 Meade [3] reported that a careful analysis was made of students converting to tuberculin during the period 1937-1943. It was found that in six classes there were 139 students who were nonreactors at the beginning of the second year. By the end of the year 80.5% had become reactors. This is indeed a high attack rate of primary tuberculous infection during the short period of nine months. The courses in pathology seemed to provide the most definite elements of risk. All students attended and assisted at autopsies on tuberculous subjects and handled and examined unfixed tissues. In 1943 a program was

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From the Department of Student Health, University of Pennsylvania.

Read in the Symposium on Occupational Health of Medical Personnel before the Section on Preventive and Industrial Medicine and Public Health at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] Jordan, L. S., and Jordan, K.: Results of 20 Years of Mantoux Testing in Schools, J. School Health **21**: 22, 1951.

[2] Durfee, M. L.: Eighteenth Annual Report of the Committee on Tuberculosis, in Proceedings of the 28th Annual Meeting of the American Collegiate Health Association, Berkeley, Calif., Gillick Press, 1949, pp. 12-16.

[3] Meade, G. M.: The Prevention of Primary Tuberculous Infection in Medical Students: The Autopsy as a Source of Primary Infection, Am. Rev. Tuberc. **58**: 675, 1948.

planned whereby all such contacts would be reduced to a minimum. Students were not permitted to attend autopsies on known cases of tuberculosis and fresh-tissue specimens were demonstrated by an instructor. Following the adoption of these measures the conversion rate among the next four classes dropped to 3.8%. Thus the incidence of primary tuberculous infection in second-year students was reduced 95%. How has this very effective means of controlling tuberculous infection in the student body influenced the more serious problem of students developing disease of the reinfection type? A recent communication from Dr. Ralph Jacox [4] of the University of Rochester is indeed very enlightening. He comments as follows:

> We feel that the chief reason for our decreased incidence of tuberculous infection is related almost entirely to the adequate control measures instituted in 1943. During the pre-control years the number of cases of clinical tuberculosis which developed among the medical student body was alarming. As many as seven or eight individuals out of a class of fifty to sixty in some years would develop radiographic and clinical evidence of pulmonary tuberculous infection. Since 1946 no cases of tuberculosis have developed among the medical student body.

Dr. Jacox reports also that during the past three years all patients admitted to the hospital have received chest x-rays. Thus their medical students are given every possible protection during their preclinical and clinical years.

The University of Minnesota Medical School has also developed a very effective program of tuberculosis control. Dr. J. A. Myers [5] recently summed up their program at the University of Minnesota in the following statement:

> Not many years ago an extremely serious tuberculosis problem existed among students of nursing and medicine at the University of Minnesota. In fact, as many as 4 to 10 per cent of students in medicine developed demonstrable tuberculous lesions before graduation. Every method of tuberculosis control, including the numerous so-called artificial immunizing agents, was given careful consideration. It was finally concluded that those who had treated tuberculosis as a contagious disease had the only method that had proved effective and offered future promise. Therefore, the program adopted at Minnesota consisted of protecting students against contagious cases of tuberculosis. This was done by (1) carefully examining for tuberculosis all patients upon admission to the hospitals; (2) requiring pre-employment examinations for all personnel and periodic examinations throughout periods of employment; (3) institution of contagious disease technique for all persons found to have contagious tuberculosis on admission to the hospitals and immediate removal or isolation of employees who developed this disease; (4) teaching students the importance of protecting themselves against contagion and also teaching them how to organize and direct contagious disease technique whether it be for an individual patient in a single room or an entire tuberculosis service. These precedures markedly decreased tuberculous infection among our students with corresponding reductions in morbidity and mortality. It has now been eight years since a student has fallen ill from tuberculosis while in school. Only one had a lesion large enough to be detected by x-ray film inspection. We have seen no reason for adopting BCG when the fundamental methods employed produced so much better results than any reported by the use of this living organism. We now consider our former students fortunate in that they did not receive any so-called immunizing agents consisting of living tubercle bacilli, including BCG.

In 1946 Morris [6] reported the results of a case-finding program among women medical students at the Woman's Medical College of Pennsylvania. This study covered a 12-year period during which time 449 students were under observation. During the first seven years, from 1932 through 1938, all students who entered as nonreactors to tuberculin converted before graduation. Fifty-six students developed tuberculous lesions, an incidence of 12.5%. Dr. Marion Boyd [7] has kindly provided me with complete data covering the experience at Woman's Medical College during the past five years. Of 50 students entering in 1950, only 18% reacted to tuberculin. From 1946 to the present time three students have developed pulmonary tuberculosis. During the past five years, therefore, the incidence of tuberculosis was approximately 85% below that of the period 1932-1943. Control measures believed to be largely responsible for this improvement are those which have been directed toward various phases of instruction in pathology. Students are not permitted to attend necropsies on tuberculous subjects and the pathologists use all possible precautions in demonstrating tissues in the laboratory.

At the University of Pennsylvania the control of tuberculosis among our students has presented a rather complex problem. Until recent years, almost all students who entered as nonreactors to tuberculin converted during their four years of training. The conversion rate was significantly higher among second-year students than in students of other classes. During this earlier period it was common practice to use advanced, open cases of tuberculosis for teaching purposes in classes in physical diagnosis for second year students. This has been discontinued. The department of pathology has cooperated by improving autopsy room techniques and by limiting the number of necropsies on tuberculous subjects which are attended by students. Three years after the adoption of this program 60% of nonreactors at entrance graduated without becoming tuberculin reactors. The incidence of pulmonary tuberculosis has decreased quite markedly. During the five-year period 1935-1940, pulmonary lesions developed in 40 students while in school. In the last five years the disease has developed in nine students with no new cases having been detected during the past two years. In our experience the development of tuberculous disease has been much more frequent among students entering medical school as reactors to tuberculin than among those who were nonreactors. Of 69 students who acquired significant lesions while in medical school, 51 (73.9%) reacted to tuberculin at the time of their entrance physical examination.

In view of the fact that tuberculosis ranked as a major health hazard among students at the above-mentioned medical schools, it is of interest to note that at Tufts College Medical School the disease has not been a serious problem. Dr. Dwight O'Hara,[8] Dean of the School, informs me that during the past 10 years tuberculosis has developed in only two students during their medical training. A report by Seifer [9] of the same institution indicates that students rarely have contact with tuberculosis either in the clinical phases of their instruction or in the autopsy room.

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[4] Jacox, R. F.: Personal communication to the author.

[5] Myers, J. A.: Personal communication to the author.

[6] Morris, S. I.: Tuberculosis as an Occupational Hazard During Medical Training: Report of Case-Finding and Follow-Up Study, with Effective Control Program for Tuberculosis in Women Medical Students, Am. Rev. Tuberc. 54: 140, 1946.

[7] Boyd, M. A.: Personal communication to the author.

[8] O'Hara, D.: Personal communication to the author.

[9] Seifer, H. W.: Incidence of Pulmonary Tuberculosis in Medical Students, Tufts M. J. 18: 14, 1951.

TUBERCULOSIS AMONG NURSES

Tuberculosis among nurses has presented a problem of real magnitude, especially in large general hospitals which maintain tuberculosis wards. Israel, Hetherington, and Ord[10] reported that at the Philadelphia General Hospital 48% of nurses who were nonreactors on admission to training became reactors during the first four months, and all converted before the end of the third year. Myers, Boynton, and Diehl[11] observed a conversion rate of 100% in nurses at a Minneapolis hospital having a tuberculosis service. Following the discontinuance of this service the percentage of conversions declined very sharply. In one class, not a single nurse acquired primary infection during three years of training. They call attention to the possible dangers of infection to nurses through exposure to a case of tuberculosis over a limited period of time. A patient with far-advanced pulmonary tuberculosis was in the hospital for 10 days, this being the only known admission at that time. Of 11 nonreactor nurses assigned to the care of this patient, 10 were found to be reactors three months later.

Numerous reports have been published since 1930 showing the incidence of tuberculous disease among nurses to be from 5 to 10%. Shipman and Davis[12] reported that in 6.7% of nurses at the University of California Hospital, pulmonary tuberculosis developed. At the Philadelphia General Hospital, which provides 396 beds for tuberculous patients, Israel[10] observed 637 nurses through three years of training in 68 of whom (10.6%) tuberculosis developed. Since 1946, the incidence of the disease has been reduced by more than 50%. Much more rigid contagious disease techniques have been put into practice and BCG vaccine has been employed on a voluntary basis. Nonreactors are not permitted to go on duty in the tuberculosis pavilion. Dr. David A. Cooper[13] who is in charge of the program reports that in two nurses who received BCG vaccine tuberculous lesions have developed. He states that the lesions were extremely minimal in extent, there was no tendency toward progression and clearing took place in a relatively short time. Kinney[14] reported that in two nurses tuberculosis developed two years after vaccination with BCG. In each case the disease developed shortly after service on a tuberculosis ward, indicating a presumably short incubation period of from four to six weeks. The onset was acute and explosive in each instance, although the clinical course of the disease was relatively benign and of short duration. Involvement of hilar and other lymph nodes was a main feature.

The control of tuberculosis in nurses can be achieved only through the utmost cooperation on the part of the hospital administration, supervising nurses, and nurses in training. All concerned must have an intelligent and sympathetic understanding of the risks involved. Nurses assigned to duty on tuberculosis wards are subject to a very definite risk of infection unless the most detailed and effective contagious techniques are maintained continuously. Education of the nurse through lectures and demonstrations is an essential part of the program. Ches x-rays on all adults admitted to the hospital should be a routine procedure, as a means of protecting nurses from unsuspected sources of infection. Close medical supervision should be provided for the nurse throughout her entire period of training. The tuberculin test should be applied during her first week in the hospital, and nonreactors should be retested at intervals of four months. Chest x-rays should be given all nurses at entrance and to all tuberculin reactors at least twice annually.

VALUE OF BCG VACCINE

Since the value of BCG vaccine has not as yet been clearly established, various committees and medical groups have recommended that its use be limited to medical and hospital personnel who may have repeated exposure to tuberculosis. It is suggested, also, that the vaccine should not be released for use among the general public. Present methods of preparation of BCG vaccine leave much to be desired. Dubos[15] has found that the numbers of viable organisms injected as an immunizing dose vary many thousandfold under the conditions of present-day practice. The early experimental work in cattle, confirmed quite recently by Medlar,[16] indicates that vaccinated animals are no more resistant to later infection with virulent tubercle bacilli than are the unvaccinated. De Abreu[17] recently reported tha in Rio de Janeiro there was a substantial *increase in* th tuberculosis mortality rate among infants and young children in spite of extensive use of BCG. During the period 1945-1948, the mortality rate among children from 1 to 2 years of age increased 62.5%. *During the same period* the tuberculosis death rate for all ages showed a significant decrease and especially so in the age group 20 to 40 years. The Council on the Management and Treatment of Diseases of the Chest[18] of the American College of Chest Physicians issued in January, 1951, a report on "The Present Status of Vaccination in Tuberculosis Control Programs." They say in part:

> It must be stated that there is no evidence that meets strict scientific requirements demonstrating that *BCG effects the control of tuberculosis*, despite the suggestive results of a few studies. Because there is no general agreement among investigators anywhere in the world on such fundamental matters as the preparation of the vaccine, the method of vaccination, what constitutes a successful vaccination, how resulting immunity may be measured or how long such immunity lasts, the procedure would seem to be still in the investigational period.

We know that primary infection with virulent tubercle bacilli does not confer a high degree of immunity against subsequent infection and disease. It is unreasonable to expect, therefore, that attenuated organisms may be more effective as an immunizing agent. The control of tuberculosis among medical students and nurses presents a for-

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midable problem wherever they may have repeated contacts with patients having the disease in a communicable form. Vaccination with BCG should under no circumstances be employed as a substitute for those measures which have proved so effective in preventing infection with tubercle bacilli.

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CLINICAL NOTES

TREATMENT OF MENINGITIS BY INTRACISTERNAL INJECTION OF CHLORAMPHENICOL

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and
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In 1947, Ehrlich and collaborators [1] isolated Streptomyces venezuelae, N. sp., from a soil sample obtained near Caracas, Venezuela. Filtrates of S. venezuelae cultures were found to have marked antibiotic activity against several gram-negative bacteria, principally Shigella paradysenteriae (Sonne). This new antibiotic in crystalline form is a neutral compound, is stable in aqueous solution for over 24 hours at a pH 2 to 9, and in distilled water is unaffected by boiling for 5 hours. At 25 C its solubility in water is about 2.5 mg. per milliliter. It is very soluble in propylene glycol, butanol, ethanol, acetone, and ethyl acetate. In vitro tests against gram-negative organisms demonstrated the new antibiotic to be 7 to 36 times as active as penicillin and approximately 2 to 16 times as active as streptomycin. Against Mycobacterium tuberculosis, it is approximately one-tenth as active as streptomycin.[2] The drug showed remarkable tuberculostatic action [3] against the majority of 19 human-type strains studied in concentrations of between 6.25 and 12.5 γ per milliliter in the presence of serum. One bovine strain was equally sensitive. Payne and co-workers [4] first employed the drug in the treatment of 16 patients with epidemic typhus. They administered it by oral and intravenous routes.

Chloramphenicol (chloromycetin®) is the chemical synthetic form of the antibiotic, and it has the same physical and chemical properties as the product obtained by fermentation.[5] It is rapidly absorbed, inactivated, and excreted.[6] In man, the drug is excreted largely in the urine, principally in the form of inactive products. After oral administration, a single dose of the drug produces an evident blood level within 30 minutes. At the end of eight hours it has disappeared from the blood, and about 90% of the total amount administered is received in the 24-hour urine specimen. The distribution of the antibiotic in the tissues of a dog is not uniform; there are high concentrations in the liver and kidneys and smaller amounts in the brain and spinal fluids. Clinically, the drug has been shown effective in the treatment of patients with rickettsial diseases, typhoid, and brucellosis, evidencing low toxicity for human beings.[7]

The case reported here is interesting not only because it concerns an uncommon disease—meningitis due to Shigella paradysenteriae—but also because it suggests another route for the administration of chloramphenicol to humans. Prior to this case, the antibiotic had been given only orally and intravenously, and only the oral route had been recommended.

REPORT OF CASE

History.—The patient was a white man, aged 22, who had been ill for three days prior to admission. He complained of headache and had an axillary temperature at times reaching 105.8 F. He was admitted to the emergency section on Feb. 6, 1950, with complaint of pain low over the right side the day before, followed by nausea and vomiting. He felt hot and dizzy and had headache and blurred vision.

Physical Examination.—The patient's axillary temperature was 101 F, rectal temperature was 103 F, pulse rate 140, respiratory rate 24, and blood pressure 90 systolic and 65 diastolic. His weight was 70 kg. Examination of the head of the respiratory and circulatory systems showed nothing unusual. Gentle palpation revealed muscle rigidity in the right lower quadrant of the abdomen, and deep palpation caused sharp pain.

Hospital Course.—A diagnosis of acute appendicitis was made. With the patient under spinal anesthesia (3 cc. of 5% procaine hydrochloride solution) immediate appendectomy was performed through a McBurney incision. A phlegmonous appendix was found, which was ruptured during the operation. The peritoneal cavity was drained for two days. The cerebrospinal fluid obtained by lumbar puncture was clear. After the appendectomy the patient was given sulfacetamide intravenously, 1 gm. every six hours, penicillin intramuscularly, at first 50,000 units and afterward 100,000 units every three hours, and adequate amounts of fluids and vitamins.

In the afternoon after the operation, the patient's temperature rose abruptly to 104 F, and his condition was poor. His blood pressure was 130/70 and pulse rate 140. He had a headache, slight nuchal rigidity, and obnubilation. Convulsions occurred frequently, and establishment of an airway was necessary. Streptomycin was given intramuscularly, 0.25 gm. every six hours. The next day the patient's condition was worse. The severity of his headache increased, nuchal rigidity was still present, and photophobia developed. Kernig's and Brudzinski's signs could be elicited. Intracisternal puncture yielded grossly cloudy fluid, under marked pressure and spurting from the needle. The cell count was 9,333 leucocytes per cubic millimeter, all polynuclears. Glucose content was 65 mg. per 100 cc. Direct smear demonstrated gram-negative bacilli. Cisternal fluid culture was required. At this time an injection of 50,000 units of penicillin was given cisternally. The administration of sulfacetamide was discontinued, and peroral administration of sulfadiazine was begun.

On the third day lumbar puncture revealed turbid fluid, and the patient was immediately given 50,000 units of penicillin intrathecally. On the fourth day there was still no improvement in the patient's general condition. The temperature still rose as high as 104 F, and the same meningitic signs became more

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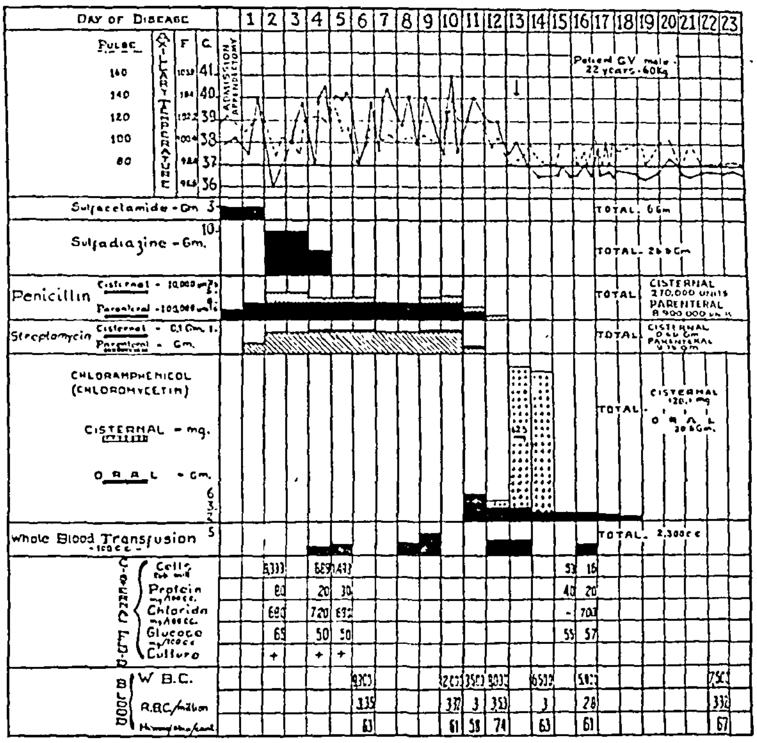
intense as the patient became stuporous. Slight cyanosis was present. In contrast to the exacerbation of the symptoms, the cisternal fluid that day contained only 688 cells per cubic millimeter, 80% of which were neutrophil leucocytes. The patient was given 20,000 units of penicillin and 0.1 gm. of streptomycin cisternally. Sulfadiazine therapy was stopped, and he was given increased fluids and vitamins and a blood transfusion. On the fifth day the cisternal fluid contained 1,493 cells, 85% of which were neutrophil leucocytes. He was given cisternally 20,000 units of penicillin and 0.1 gm. of streptomycin.

By the sixth day, in spite of the medication, the patient's general condition was growing worse; stupor increased, the temperature maintained a high level, and the cisternal fluid remained turbid. The patient received cisternally 25,000 units of penicillin and 0.1 gm. of streptomycin. On the following day his condition was almost unchanged. He was delirious at times. The cisternal fluid was still cloudy. He was again given 25,000 units of penicillin and 0.1 gm. of streptomycin by cisternal route. The next day the axillary temperature rose to 105.8 F. The patient was extremely restless and not aware of his surroundings. Cisternal puncture revealed cloudy fluid. He was given cisternally 30,000 units of penicillin and 0.1 gm. of streptomycin. The patient's general condition was still unchanged on the 11th day. His temperature remained high: 104 F. Cisternal fluid continued to appear dull. He was given cisternal injection of a mixture of 25,000 units of penicillin and 0.1 gm. of streptomycin. At this time the culture of the first cisternal fluid specimen, which had been obtained the second day of the disease, revealed that the causative agent was S. paradysenteriae; therefore, treatment by penicillin and streptomycin was discontinued and oral administration of chloramphenicol was begun. The inital "loading" dose of 3 gm. was divided and given in two doses one hour apart. These were followed by additional doses of 0.25 gm. every two hours for three days, then every three hours for three days, and, finally, every four hours for two days. By the 18th day the patient had received orally a total amount of 20.5 gm. over an eight-day period.



Summary of clinical data in case reported.

On the 12th day, however, there was little clinical improvement. The temperature had decreased to 103 F, but cisternal fluid remained turbid. Considering the low cerebrospinal levels obtained orally,[6] Dr. Trindade thought of introducing the drug directly into the cisternal fluid to obtain higher concentration levels with total utilization of the antibiotic. A solution was prepared by diluting 0.25 gm. of chloramphenicol and 200,000 units of penicillin in 10 cc. of saline solution. A dose of 1.25 cc. was injected, containing about 3.1 mg. of chloramphenicol. There was no untoward reaction.

The next day, the patient evidenced some relief from headache, but the general condition and symptoms remained unaltered, and the temperature did not decline from 100.4 F. Although the chloramphenicol-penicillin preparation had been kept under refrigeration overnight, it showed crystallized sediment and therefore had to be discarded. Cisternal fluid obtained by puncture was still as dull as on all the previous daily samples. Since the infection persisted in spite of the therapy used, it was decided to increase the cisternal amount of the drug. A new suspension-solution was prepared by suspending 0.25 gm. of chloramphenicol in 20 cc. of isotonic sodium chloride solution, and a dose of 5 cc. was administered cisternally. The chloramphenicol content of this dose was 62.5 mg. or approximately 1 mg. per kilogram of body weight (the patient weighed 60 kg.). The injection was made slowly and cautiously by barbotage, and the portion of the drug in suspension was dissolved in the cisternal fluid.[1]

On the 14th day, 24 hours after this treatment, the patient showed marked improvement. His temperature decreased to 98.2 F. His pulse rate was 88, blood pressure 100/65. The headache and photophobia had disappeared, and nuchal rigidity had lessened. The patient regained consciousness and was able to answer all the questions clearly. Immediate cisternal puncture yielded crystal-clear fluid and normal pressure. The dose of 62.5 mg. was repeated. The patient continued to improve the following day. He was conscious, afebrile, and euphoric. The cisternal fluid was clear and slightly xanthochromic. It contained 53 cells per cubic millimeter, 65% of which were lymphocytes. By the next day the cisternal fluid was still clear, containing only 16 cells per cubic millimeter, 75% of which were lymphocytes. The fever did not recur, and the patient's condition continued to improve gradually, the nuchal rigidity decreasing every day, until he could again move his head and sit up in bed. When oral administration of chloramphenicol was discontinued, on the 18th day, the patient had received a total amount of 20.5 gm. perorally and 128.1 mg. cisternally.

On the 22nd day Widal and Weil-Felix tests were negative. Liver function tests indicated unchanged function of the hepatic cell. Blood, urine, and stool examination and culture proved negative for S. paradysenteriae. The cisternal fluid was clear and colorless, having 20 cells per cubic millimeter, all mononuclears. No blood culture was made during the acute phase of the disease. The patient was discharged on the 37th day, *fully* recovered, without neurological sequelae.

Follow-up Observations.—When examined, two weeks after discharge, the patient was in good condition. Cisternal puncture showed clear fluid, 16 cells per cubic millimeter (mononuclear leucocytes), protein 15 mg. per 100 cc., chlorides 680 mg., and glucose 71 mg. per 100 cc. There were no bacteria, either on direct smear or on culture. On reexamination, three months after cisternal chloramphenicol therapy, the patient had gained weight and was in excellent health. The cisternal fluid was clear and had only one cell per cubic millimeter. Protein was 10 mg. per 100 cc., chlorides 710 mg., and glucose 71 mg. per 100 cc. There were no bacteria, either on direct examination or on culture.

COMMENT

Acute Shigella paradysenteriae meningitis was observed in a patient after appendectomy under spina anesthesia. It was perhaps due to complications of contamination at the time of puncture or to simultaneous bacteremia or septicemia; unfortunately, no blood cultur was made during the acute period of the disease.

Sodré, Croce, and Cunha [8] have competently reviewe the literature on septicemia caused by S. paradysenteria which includes 150 cases between 1901 and 1949. W have reviewed the available literature on meningitis the same origin and believe the present case to be th first ever reported. In spite of normal spinal fluid glucos levels, the case may be classed as severe from the stanc point of temperature and general condition.[9]

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Although the patient had been properly treated with penicillin, streptomycin, and sulfonamides, and although chloramphenicol had been given orally for two days together with a small injection of 3.1 mg. cisternally, no evident improvement could be observed after a period of 12 days. At this time a "loading" dose of 62.5 mg. of chloramphenicol was administered intracisternally with excellent results. Indeed, 24 hours after this administration the clinical picture was completely changed, the patient being almost cured.

In our experiments [10] dogs received cisternal doses of 2 mg., 5 mg., and 10 mg. per kilogram of body weight. These animals tolerated the administration and recovered spontaneously. Dogs inoculated intracisternally with S. paradysenteriae did manifest meningitis clinically but recovered spontaneously; the cisternal fluid was turbid 24 hours after inoculation, with increased pressure, but culture was negative. In vitro test cultures of S. paradysenteriae grow well in the spinal fluid of the dog but poorly in its serum.

Tuberculostatic levels of the drug [9] can easily be obtained in the spinal fluid by cisternal or intrathecal routes, which suggests its use in the treatment of the tuberculous meningitis. Further clinical studies will afford a more accurate appraisal of its value. To our knowledge there has been no previous report on therapy with chloramphenicol by cisternal or intrathecal routes.

SUMMARY

A patient with severe Shigella paradysenteriae meningitis following spinal anesthesia recovered fully with chloramphenicol (chloromycetin®) therapy. A new route was successfully used, and recovery is attributed principally to the intracisternal administration. The dosage employed was 1 mg. of the drug per kilogram of body weight. We recommend the intracisternal route of administration because the antibiotic can be easily sterilized by boiling and possesses low toxicity.

Rua da Moóca, 3,375 (Dr. Trindade).

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Appendectomy During Cholecystectomy.—The appendix should be examined routinely before a cholecystectomy is performed, even though a definite pathologic condition exists in the gallbladder, for studies have shown frequent coexistence of appendical lesions. The examination should be done with care, because an inflammation of the appendix, especially of the catarrhal type, can be easily overlooked if the inspection is cursory and the surgeon's mind is centered on the gallbladder pathology.

The fact that the appendix may produce trouble subsequently if allowed to remain, and that it can be removed during cholecystectomy with little added risk, indicates that it should be removed routinely whenever it is accessible. If the cholecystectomy incision does not permit the appendectomy, the organ should be carefully examined by palpation for the presence of a fecalith or any abnormality. If a fecalith is found, it is advisable to remove the appendix by extending the gallbladder incision or by making a separate McBurney or gridiron incision. An elective appendectomy may be necessary at a future date, if the condition of the patient does not permit an immediate appendectomy.—Tokuso Taniguchi, M.D., and Frederick A. Stratton, M.D., Prophylactic Appendectomy During Cholecystectomy, *Wisconsin Medical Journal*, October, 1951.

AN EARLY CLINICAL SIGN OF VENOUS THROMBOSIS

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Venous thrombosis, with its insidious onset and disabling, if not tragic, complications, is receiving more attention than ever by surgeons, internists, and obstetricians. As medical science conquers more and more of the traditional foes of mankind, it becomes only natural that intravascular clotting command and receive more attention. Furthermore, with the ever-increasing elective invasion of heretofore unexplored surgical fields, the problem of postoperative venous thrombosis becomes even greater.

Whether or not venous thrombosis is actually on the increase, the medical profession has become more conscious of the problem, so that routine postoperative examination of the lower extremities is a daily function of all surgical residents and surgeons, and should be for obstetricians and internists as well, especially in the elderly bedridden patients.

Much of the difficulty in the management of thromboembolism is due to the fact that diagnosis is frequently not established until serious embolic manifestations have arisen. Recently Dr. Kay, working in the Ochsner laboratory, reported that thrombosis was favored by a lowering in the antithrombin content of the plasma and that this lowering could be successfully combated with alpha tocopherol and calcium. Unfortunately, this test has not had sufficient trial to be confirmed or refuted by other investigators. My experience in more than a year has not justified the initial confidence in the test, but final approval or condemnation of the test will be deferred, pending further studies.

In the absence of any truly reliable and practical laboratory test, the early diagnosis of venous thrombosis depends on clinical judgment and acumen. The following important diagnostic signs and symptoms of thromboembolism (the two processes are so closely interrelated that they may be considered as one syndrome) are generally described in the literature: (1) pain with or without tenderness over the calf muscles, malleoli, or plantar surfaces; (2) pain on dorsiflexion of the foot with leg extended (Homan's sign); (3) swelling of the leg; (4) unexplained rise in pulse or temperature; (5) chest pain, with or without cough or bloody expectoration; (6) apprehension, pallor, nervousness, or a "feeling of impending disaster"; (7) cyanosis of the legs; (8) temperature differences in the legs; and (9) the sentinel veins of Pratt.

To these I should like to add a fairly constant, simple and early sign that I have found to be of great value in my clinical practice. In the past five years, I have become increasingly aware, particularly on palpating the femoral pulse preparatory to vein ligation, of the significance of marked diminution or even absence of the femoral pulse in the affected extremity. This phenomenon has invariably been present, even in the absence of other appre-

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ciable signs or symptoms, and has served as a useful guide to therapeutic unilateral femoral vein ligation followed by anticoagulant (heparin) therapy, my present method of management of these cases. For example, in the past six months I have had two cases of serious but nonfatal pulmonary emboli in which this unilateral change in the femoral pulse was the only significant clue to the affected extremity.

The physiological mechanism for the sign may be understood when one considers the marked and early angiospasm that attends all vascular accidents to any extremity, regardless of the location of the thrombus. The degree and significance of this angiospasm is readily appreciated by anyone who has successfully performed a lumbar sympathetic block on a patient with venous thrombosis.

The change in the femoral pulse occurs early in both thrombophlebitis and phlebothrombosis, long before there is any demonstrable edema or swelling. This sign has the additional advantage of being apparent without the aid of any apparatus. Observation of the femoral pulse should be part of the daily postoperative routine, so that appropriate therapeutic measures may be taken when indicated.

SUMMARY

A simple bedside test of diminution or absence of the femoral pulse in the lower extremities is reported as another diagnostic aid in the early detection of venous thrombosis.

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FATAL AIR EMBOLISM IN PREGNANCY

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Air embolism is not an uncommon complication when diagnostic or therapeutic measures using air under pressure are employed. Air embolism also occurs when the air is not under pressure. In either instance there must be a break in the continuity of a vessel, either artery or vein, and the open vessel must contain blood under less pressure than the surrounding air. Of particular interest and concern to the obstetrician are those situations involving the female genital tract that may give rise to air embolism during or shortly following pregnancy.

Forbes[1] reported the case of a woman dying suddenly at three months pregnancy apparently after a self-administered douche. Autopsy revealed the right side of the heart and the pulmonary artery to be filled with frothy blood. Deadman[2] reported four cases of fatal air embolism in women anywhere from three and one-half to seven months pregnant. In three of these a Higginson syringe had been used to inject fluid to induce abortion. Air was inadvertently injected along with the fluid. Fatal air embolism following attempts at abortion, in which trapped air is forced into the uterus along with various other materials, is not rare; there are many reported instances. Also, fatalities have resulted from air embolism following vaginal insufflations during pregnancy.[3] Patients have died from air embolism as a result of assuming the knee-chest position as part of their postpartum exercises.[4]

As a complication of delivery, fatal air embolism has been considerably rarer, judging from the relatively few reports in the literature. Osborn and Dawson[5] reported two such fatalities in 1938. The first was in a primigravida on whom a cesarean section was done for dystocia. During the operation the patient's blood suddenly became dark, and a general cyanosis was apparent. The uterus did not respond well to oxytocics, and there was considerable hemorrhage. One-half hour after the operation she became quite cyanotic, cried and waved her arms about. She died three hours after the operation. Autopsy showed air bubbles in the right side of the heart. The placental site was left anterior at the fundus. The second fatality, a primigravida, died mysteriously one hour after a normal spontaneous delivery. Shortly before death, when a nurse expressed some clots, the patient collapsed, became restless and cyanosed, and waved her arms about. Autopsy revealed many air bubbles in the right auricle and ventricle and in the pulmonary artery. In 1947 Mylks, Brown, and Robinson[6] reported a patient who hemorrhaged during labor from a low-implanted placenta with separation. One-and-a-half hours before delivery she went into shock, became restless, and was cyanosed. She died one-half hour after delivery of a stillborn baby. At autopsy air bubbles escaped when the vessels of the breast were cut. Air bubbles were also in the right ventricle.

REPORT OF CASE

History.—P. M., a 42-year-old woman, gravida 3, para 2, had been regular in her attendance at the clinic, and her prenatal course was uneventful except for development of polyhydramnion, noted on Dec. 2, 1950. Fetography showed one fetus in breech presentation, with no fetal abnormalities apparent. The expected date of confinement was Jan. 27, 1951. The patient was first admitted to the hospital on Jan. 11, 1951, because of suspected ruptured membranes. After a four-day hospital stay, during which time she received penicillin, she was discharged with no further evidence that the membranes were actually ruptured. The patient was next admitted to the hospital on January 30 because of the onset of labor.

Physical Examination.—There was a generalized urticarial rash over the entire body, which had been present for about three days according to the history. Bright red blood was present on the perineum, but no active bleeding was noted at this time. The size of the uterus was compatible with a gestation of approximately 34 weeks. The fetus was thought to be in a transverse presentation. Fetal heart tones were not audible. The blood pressure was 120/75, pulse rate 120, and temperature 99.8 F. During fetography an episode of vaginal bleeding occurred (about 200 cc. of bright red blood). The roentgenogram revealed a complete

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right sacrotransverse breech presentation. Speculum examination revealed placental tissue to be covering the entire internal os. The patient was taken to the operating room, where the diagnosis of placenta previa was confirmed by an attending staff member. The cervix was dilated 6 cm.

Hospital Course.—A transverse, low-flap cesarean section was done under cyclopropane, ether, and nitrous oxide anesthesia without incident, and a stillborn fetus weighing 2,120 gm. was delivered. The placenta completely covered the internal os and extended up anteriorly and to the right. The patient's general condition was good immediately after the operation. At this time the blood pressure was 130/80 and the pulse rate 120. Twenty minutes later the blood pressure had dropped to 80/60, and the pulse rate had risen to 144. Ten minutes later the blood pressure was 75/40. There was no definite evidence of intra-abdominal hemorrhage and no unusual external bleeding. The abdomen was soft, and the uterus felt firm. The lungs were clear. The urticarial rash seemed to become larger and more diffuse. Shock therapy, including oxygen, morphine, and rapid blood transfusion, was being carried out. The patient became very dyspneic after the onset of shock and did not respond to medication. She became markedly cyanotic; respirations became more labored; and she died 65 minutes after operation.

Laboratory Data.—The patient's blood type was O, Rh positive. On admission the hemoglobin value was 16 gm. per 100 cc. Findings from urinalysis were essentially negative. Repeat blood typings and cross-matchings after death revealed no error.

Autopsy Findings.—Autopsy was performed eight hours after death. When the pulmonary artery was opened in situ, air bubbled out freely and was apparently under some pressure. The right auricle and ventricle contained frothy blood. The peritoneal cavity contained approximately 300 cc. of dark blood. The uterus was firm and measured 15 x 15 x 10 cm. The incision was in good apposition, all sutures being in place. One small blood clot was in the right cornu of the uterus. Open vessels could not be demonstrated on the inner surface of the uterus. Microscopic examination revealed no further information.

COMMENT

It appears that under certain conditions the pregnant uterus is peculiarly adapted to becoming an entrance for air. The entrance is usually through one or more open vessels subjacent to the separated or partly separated placenta. Entrance may also be created during operative procedures such as cesarean section, by cutting across vessels in the uterine wall. When a cesarean section is done in the presence of uterine bleeding, when there has been separation of the placenta, one may expect the chances for air embolism to be enhanced somewhat. Air embolism as a complication of delivery probably occurs oftener than is generally supposed, and is undoubtedly the cause of some unexplained maternal deaths.

In patients dying of air embolism marked cyanosis is almost invariably present unless death is instantaneous. This anoxia, the probable cause of death, would seem to be brought about principally by two mechanisms. First, the heart fills with compressible air. Thus, with each heart beat much of the force of the beat is taken up in compressing the air rather than forcing a normal amount of blood through the vessels. Second, the blood is whipped into a froth, and reaches the lungs as such, preventing a normal exchange of gases. It is, of course, possible for some air bubbles to get through the capillary bed into the general circulation; or air might, on occasions, be shunted into the general circulation before reaching the lungs. If bubbles reach the vessels of the brain, heart, kidneys, or other organs, one could expect various symptoms characteristic of the organ or organs involved.

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COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized publication of the following report. R. T. Stormont, M.D., *Secretary.*

A CONTROLLED STUDY OF PAIN RELIEF BY INTRAVENOUS PROCAINE

Arthur S. Keats, M.D.
Genesio L. D'Alessandro, M.D.
and
Henry K. Beecher, M.D., Boston

Since 1947, almost 50 publications have appeared which report that many varieties of pain as well as edema, muscle spasm, itching, symptoms of asthma, and certain eye diseases have been relieved by intravenous procaine. Most observers have reported that the side-actions are minimal and of little consequence. Despite the necessity of controls in investigations of this type, no observer (known to the authors) in studying the beneficial effects of this drug has treated a comparable group either with a placebo or with a standard therapeutic agent. Both kinds of comparison are essential. In addition, the known rapid hydrolysis of procaine in the blood stream [1] and the slight or absent analgesic effects of its break-down products [2] (paraaminobenzoic acid and diethylamino ethanol) are not in accord with the prolonged pain relief reported. For these reasons, a controlled study of pain relief by intravenous procaine was undertaken.

METHOD

The method of study is that previously used by the authors to estimate the analgesic power of barbiturates.[3] Patients who had undergone major surgical procedures and who developed constantly present wound pain of moderate or severe degree on the first postoperative day were the subjects of this study. Any patient with a history suggestive of procaine sensitivity was not included in the study. When a suitable degree of pain developed, the patient was given the first drug of a series (saline, procaine, morphine) and the degree of pain relief evaluated at specific intervals thereafter (usually 30 and 60 minutes). If little or insufficient relief was obtained, the second drug was given and its effect again evaluated after specific intervals. The third drug was given and evaluated similarly. If pain relief was obtained after any dose, the subject was observed at intervals until his pain returned to approximately the original level and then the series of drug administrations continued as described. Not every subject received all three drugs, because, in many, pain did not return within the experimental period (8:00 a. m. to 6:00 p. m. of the first postoperative day). In others, the pain which returned was milder or of different type and could not be used for further testing.

The three drugs employed were saline, procaine hydrochloride, and morphine sulfate. Procaine was given as a 0.1% solution in 5% dextrose in water through an intravenous infusion set. The doses used will be discussed below. Saline was given in a similar manner at a rate of approximately 200 cc. per hour. Intravenous morphine was given slowly by syringe over the

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From the Anesthesia Laboratory of the Harvard Medical School at the Massachusetts General Hospital, Boston.

This work was carried out under grants from the National Research Council, No. D-1, and from the Department of the Army, No. 49-007-MD-76.

[1] Brodie, B. B.; Lief, P. A., and Poet, R.: Fate of Procaine in Man Following Its Intravenous Administration and Methods for Estimation of Procaine and Diethylaminoethanol, J. *Pharmacol. & Exper.* Therap. **94**: 359-366 (Dec.) 1948.

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[3] Keats, A. S., and Beecher, H. K.: Pain Relief with Hypnotic Doses of Barbiturates and a Hypothesis, J. Pharmacol. & Exper. Therap. **100**: 1-13 (Sept.) 1950.

course of one minute. The dosage was always 8 mg. per 70 kg. of body weight. A physician was present constantly during the administration of the drugs and recorded the side-actions. All evaluations of pain relief were made by trained technicians who were unaware of the nature or dose of the drug administered. The technicians appeared only at the specific times for evaluation and were not present during the entire drug administration. Criteria for evaluation were established rigidly and all technicians were indoctrinated with the same standards.

Drug effects were judged by their ability to produce both pain relief and comfort. In previous work with analgesics, it was observed that pain relief was not always associated with comfort; that is, satisfaction by the patient with the results produced. Some patients, while claiming to be relieved of their pain, were not content because they continued to be tense, restless, and bothered by tubes, catheters, or nausea. Others, although claiming that their pain was unchanged, appeared comfortable as a result of the drug and did not wish further medication. The authors believe that analgesics are therapeutically effective when they provide comfort with or without pain relief, and have evaluated the efficacy of any single dose in terms of the four possible categories: (*a*) no comfort, no pain relief; (*b*) no comfort, pain relief; (*c*) comfort, no pain relief, and (*d*) comfort, pain relief. The latter two categories represented the desired effect both from the physician's and the patient's viewpoint. Further justification for these categories as well as further details of the method can be found elsewhere.[3]

TABLE 1.—*Therapeutic Effectiveness of Intravenous Saline, Procaine, and Morphine in Small Groups of Patients*

Time of Evaluation		Saline		Procaine		Morphine
		30 Min.	60 Min.	30 Min.	60 Min.	30 Min.
Group I (12 Patients)						
0 Comfort	0 Relief	7	..	5	..	4
0 Comfort	+ Relief	1	..	2	..	..
+ Comfort	0 Relief	..	..	..	..	1
+ Comfort	+ Relief	4	..	4	..	5
Group II (16 Patients)						
0 Comfort	0 Relief	14	13	7	6	..
0 Comfort	+ Relief	..	1	1	2	2
+ Comfort	0 Relief	..	..	..	2	..
+ Comfort	+ Relief	2	2	6	2	10
Group III (15 Patients)						
0 Comfort	0 Relief	4	5	6	6	..
0 Comfort	+ Relief	1	..	3	3	1
+ Comfort	0 Relief	1	..	..	..	..
+ Comfort	+ Relief	..	1	6	6	6
Group IV (10 Patients) Procaine with Ascorbic Acid						
0 Comfort	0 Relief	..	..	7	7	3
0 Comfort	+ Relief	..	..	..	1	..
+ Comfort	0 Relief	..	..	..	..	..
+ Comfort	+ Relief	..	..	3	2	3

RESULTS

A total of 53 patients divided into four groups was studied. The initial group of 12 patients was given saline first, followed by procaine, and finally, morphine. The dose of procaine used was the "procaine unit" (4 mg. per kg. of body weight administered over a 20-minute period).[4] Saline and procaine were administered for 20 minutes, and evaluations of all drugs were made 30 minutes after each administration. Because of the poor results in this initial group (Table 1), further use of this dosage did not seem advisable.

Therefore, a second group of 16 patients was studied with the same order of drug administration except that procaine was now administered up to the limit of tolerance for 20 minutes (as rapidly as possible without producing unpleasant side-actions) and then allowed to drip in slowly for the next 40 minutes. Evaluations were made at 30 minutes and 60 minutes. This allowed for evaluations after both rapid and slow administrations and after two widely different doses. The results are shown in Table 1, Group II.

The frequent failure of saline to relieve pain initially and the discomfort commonly associated with intravenous drip administration were considered as possibly providing a negative conditioning factor against relief from any drip medication. Therefore, in the third group procaine was given initially, followed by saline, and then morphine. Procaine here has the additional advantage of being credited with relieving those patients who would have obtained relief from a placebo. The dosage and technique were the same as in Group II. This modification produced some increased pain relief but not much increase in comfort. Also, its results did not equal those of morphine. The low number of administrations of saline and morphine resulted from five patients having no return of pain and from other patients having reactions to procaine that were too distressing to make further study advisable.

TABLE 2.—*Dose of Intravenous Procaine Used in Various Groups**

Group	Mg. per First 20 Min.		Mg. in Excess of the "Procaine Unit," Mean	Mg. per Hour	
	n†	Mean		n†	Mean
I........	11	322 ± 28	57 ± 22	..	....
II........	12	354 ± 26	74 ± 24	11	723 ± 65
III........	15	357 ± 24	87 ± 26	14	765 ± 46
IV‡.......	10	455 ± 32	208 ± 35	10	1,000 ± 61

* Patients in whom administration was stopped because of severe toxic reactions are omitted. The dosage is expressed as mean ± standard error of mean.

† Number of patients included.

‡ Given with equal amounts of ascorbic acid.

Because of the claims that the addition of ascorbic acid decreases the toxicity of intravenous procaine,[5] a fourth group was studied in an attempt to decrease side-actions while retaining whatever analgesic potency that might be present. Saline was not given to this group and the procaine-ascorbic acid mixture was given first, in the favorable order, as a 0.1% procaine-0.1% ascorbic acid solution. The rate of flow was adjusted to give minimal side-actions but maximum flow. The solution was allowed to run for one hour. Morphine followed the procaine-ascorbic acid. The addition of ascorbic acid permitted the administration of greater amounts of procaine than otherwise would have been possible without serious side-actions; this is indicated in Table 2. However, this increased dosage was not accompanied by increased analgesia; this is shown in Table 1, Group IV.

When the data of the first three groups only are combined (Table 3), it is apparent that, although intravenous procaine does possess some analgesic power, its effect is considerably less than that of morphine. This remains true even when pain relief alone is considered. Judging from previous work of the authors,[3] the analgesic power of procaine, when administered as specified, is of the same order as that produced by 90 mg. of pentobarbital sodium.

TABLE 3.—*Comparative Effects of Intravenous Saline, Procaine, and Morphine on Postoperative Pain*

Time of Evaluation	Saline		Procaine		Procaine + Ascorbic Acid		Morphine
	30 Min.	60 Min.	30 Min.	60 Min.	30 Min.	60 Min.	30 Min.
No. of patients....................	34	22	40	27	10	10	35
(a) 0 Comfort 0 Relief..........	25	18	18	12	7	7	7
(b) 0 Comfort + Relief..........	2	1	6	5	..	1	3
(c) + Comfort 0 Relief..........	1	..	..	2	..	..	1
(d) + Comfort + Relief..........	6	3	16	8	3	2	21
% Therapeutic effect (c and d)....	21	14	40	37	30	20	71
% Analgesic effect (b and d)......	24	18	55	48	30	30	77

The frequency of side-actions following each drug is recorded in Table 4. In addition to those listed, faintness, weakness, drowsiness, lightheadedness, a "flushed" feeling, and dulled hearing were noted after procaine; a "woozy" feeling, generalized warmth, transient abdominal cramps, and drowsiness were reported after morphine. One patient claimed to have generalized numbness and a metallic taste in his mouth for one week after procaine. Another claimed that one-half of his body was numb

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4. Graubard, D. J.; Robertazzi, R. W., and Peterson, M. C.: Intravenous Procaine: A Preliminary Report, New York J. Med. 47: 2187-2192 (Oct. 15) 1947.

5. Graubard, D. J., and Peterson, M. C.: The Therapeutic Uses of Intravenous Procaine, Anesthesiology 10: 175-187 (March) 1949.

for several hours after procaine. Blood pressure was recorded during administration of the drugs, but no hypotension was observed.

An alternate method of tabulating the data is presented in Table 5. Response A indicates no pain relief with or without distressing side-actions; response B, pain relief with distressing, highly unpleasant, or serious side-actions; response C, pain relief with minor or no unpleasant side-actions. This method is said to provide an index of clinical usefulness for each drug.[6] The general picture differs little from that presented above.

TABLE 4.—*Relative Side-Action Liability*

	Incidence, %			
Side-Action	Saline	Procaine	Procaine + Ascorbic Acid	Morphine
Dizziness	3	63	80	14
Nausea	6	45	30	20
Vomiting	6	23	20	14
Generalized numbness	3	30	50	0
Oppressive chest sensation	0	10	0	0
Marked apprehension	0	15	0	0
Begged to stop I. V.	0	13	0	0
Tachycardia	0	5	0	0
Shortness of breath	0	10	0	0
Blurred vision	0	20	10	0
Difficulty with speech	0	15	20	0
No. of subjects	34	40	10	35

Others following procaine (less than 5% frequency): convulsions, disorientation, paresthesias, tinnitus, and restlessness.

DISCUSSION

The hypothesis advanced to explain the analgesic power of intravenous procaine[7] states that increased capillary permeability exists in areas of trauma or inflammation allowing larger amounts of procaine (given intravenously) to accumulate in the diseased tissue than in normal tissues. This allows for blocking of local nocicepter nerve fibers which, when stimulated, arouse reflex vasospasm and accentuate the existing pain by anoxia and edema. Procaine interrupts this "vicious circle" and provides pain relief and improved healing by an increased blood flow. If this were true, the postoperative patient, with his very real area of trauma and inflammation, should provide the ideal subject for analgesia by intravenous procaine. Unfortunately, our data do not support this hypothesis.

It is more likely that any analgesia produced by intravenous procaine results from its action on the central nervous system. In 1944, Bigelow and Harrison[8] demonstrated that subcutaneous infiltration of procaine into one arm produced an elevation of pain threshold in the opposite arm. Although it is generally accepted that pain threshold measurements bear little relationship to analgesic effects, this observation can be construed as indicating that systemic absorption of procaine alters the psychic reaction to painful stimuli. It is possible that any drug which has effects on the psyche (as procaine has) can relieve pain to some extent simply by the distraction produced by the multitude of psychic stimuli aroused by the drug.

TABLE 5.—*Comparative Effects of Saline, Procaine, and Morphine Including Side-Actions*

	Saline		Procaine		Procaine + Ascorbic Acid		Morphine
Time of Evaluation	30 Min.	60 Min.	30 Min.	60 Min.	30 Min.	60 Min.	30 Min.
No. of patients	34	22	40	27	10	10	35
Response: A*	26	18	18	14	7	7	8
Response: B†	2	..	8	2	..	..	..
Response: C‡	6	4	14	11	3	3	27
% Therapeutic effect (C)	18	18	35	41	30	30	77
% Analgesic effect (B and C)	24	18	55	48	30	30	77

* No pain relief with or without distressing side-actions.

† Pain relief with distressing, highly unpleasant, or serious side-actions.

‡ Pain relief with minor or no unpleasant side-actions.

It is interesting to find that the best results with this drug have been reported in the treatment of those symptoms with a large psychic overlay (low back pain, itching, tinnitus), or those diseases notorious for the vagary of their symptoms and spontaneous remissions (arthritis, serum sickness, angina pectoris), or those conditions associated with minor degrees of pain (certain sprains, fractures, and burns, and following thyroidectomy and radical breast excisions). Once again the occasion arises for a plea for the use of controls in all investigations and for rigid controls (both for patient and observer) in investigating pain.

In the group of patients studied at the Massachusetts General Hospital, intravenous procaine relieved 40% of the patients in contrast to 20% with saline and 70% with morphine. (The 30 minute evaluations are used because of the greater amount of such data.) Despite the relatively small number of patients, these differences are statistically significant by the conventional chi square method. The percentage of patients relieved in this group by saline and morphine compares closely with the data in a much larger series reported previously[3] (viz: 21% for saline and 76% for morphine). In this study, the percentage of patients relieved by morphine is probably a low estimate, since it was given primarily to patients not relieved by saline or procaine.

This degree of analgesia from procaine was achieved at the cost of tremendous side-action liability, mainly unpleasant. Although one death has been reported from intravenous procaine given for the pain of arthritis[9] and severe sudden hypotension refractory to the usual methods of therapy has been reported from the use of large doses,[10] most observers have minimized the potential dangers of this drug. The authors believe that the extreme anxiety and apprehension, the dyspnea, the tachycardia (to 150 per minute), the disorientation, and the violent vomiting experienced by some patients is alarming. In six patients, the administration of procaine had to be stopped because of the magnitude of the side-actions. Patients have begged to have the infusion stopped because of the unpleasantness, and some have wept when anticipating a repetition ("I would rather have the pain."), but an equal number have enjoyed its effects.

Perhaps the doses used were excessive and, therefore, the side-actions were excessively frequent and severe. However, the low analgesia attained even with these doses and the possibility of such side-actions with small excesses in dose do not enhance the usefulness of this drug. Obviously, it is not a substitute for morphine. In addition, there is a very large variation in individual susceptibility to toxic effects of procaine. The authors have produced generalized clonic convulsions by injecting 75 mg. intravenously over a 4-minute period and have also given 800 mg. over a 20-minute period (160 mg. per 4 minutes) with dizziness alone resulting.

The rapid administration of large volumes of fluid necessary for this therapy complicates postoperative fluid balance, especially in patients having abdominal surgery and those with heart disease. The use of more concentrated solutions decreases the safety and controllability of the procedure. Very slow administration has little effect because of the rapid hydrolysis of procaine in the blood stream. Because of the rapid fluid administration, the large variation in susceptibility to toxic effects, and the possibility of serious side-actions, physician attendance is mandatory, prohibiting routine use of this therapy. These poor results have been reported by only one other observer.[9]

CONCLUSIONS

Saline, procaine, and morphine were given intravenously to the same 53 postoperative patients for treatment of pain. Saline relieved 20% of this group, procaine 40%, and morphine 70%. The degree of relief produced by procaine approximates that produced by 90 mg. of pentobarbital sodium.

The analgesia produced by intravenous procaine was accompanied by frequent unpleasant and sometimes serious side-actions. Unless procaine, administered by this route, can be demonstrated to produce significant beneficial effects on specific disease-processes, it has no place in the treatment of pain.

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VOTING PRIVILEGES

A recent editorial in the *Los Angeles Mirror* reveals the apathy shown by too many citizens of this country when elections are held. According to this newspaper, less than 50 per cent of qualified United States voters exercise their privilege of voting in national elections. In Los Angeles the voting rate is between 20 and 35 per cent, which offers a dismal showing when compared to Great Britain, where national elections are said to bring out 85 per cent of the voters. However, Los Angeles is not unique. Other cities are as delinquent in this respect.

Dallas, Texas, newspapers several weeks ago carried information on the response of the voting public in that city. According to the Dallas County Poll Tax Committee, only 26 per cent of the members of the seven leading Dallas professional groups voted in the last Presidential election. The *Dallas Times Herald* and the *Dallas Morning News* justifiably drew attention to the findings of the Poll Tax Committee. According to information supplied in these newspapers, the heaviest vote among professional groups was found in the legal profession, but even in this group only 38 per cent of the lawyers voted in 1948. The poorest showing made by professional groups was in the nursing profession, in which only 12 per cent voted. In the medical profession, 36 per cent of the physicians voted. According to the *Dallas Morning News*, "it is the doctor, the lawyer, the engineer who bemoan the threat of socialism and burdensome debts. The doctor who fears socialized medicine and does nothing at the polls to combat it is legion. The Dallas poll merely proves locally a national picture that is pitiable.

"The result is a government of pressure groups alert to step in where others fail to tread.

"Polls similar to that in Dallas show 85 per cent of labor union membership votes. The figure is 90 for those who hold government jobs. Not only do they vote, they influence others. This is their civic privilege; we might even say duty, though it is a duty with a motive.

"Socialism can easily come to this country without a vote of the people. It can come by default."

When the figures for voters are finally compiled for 1950 it probably will be found that the professional groups, particularly physicians, now show a much greater interest in voting, and the precentage of voters in these groups should in general be much higher. It certainly can be said without fear of contradiction that in the country at large there has been sharply increased interest in registering and voting on the part of the medical profession. However, there is still room for improvement, and all physicians, as well as other members of professional groups, and especially those concerned with health, should recognize their obligations as citizens in these critical times.

According to the *Los Angeles Mirror*, Boy Scouts, as a civic duty, will try to induce more citizens to vote in the 1952 elections by ringing doorbells and reminding citizens that they should go to the pools. Facetiously, the *Mirror* says, "We wish the Scouts well in their efforts to stir up a little civic conscience in our slackers, but we've got a better idea. Maybe we should think about letting the Scouts vote."

We wish the Boy Scouts well in their attempts in 1952 to induce more citizens to vote in the elections. The work would be easier, however, for the Scouts and all other groups with similar civic-minded ideas, if examples were set by professional groups who in meeting their responsibilities as citizens are fortunate in having advanced training that should put them in an advantageous position to recognize the leadership they can provide in civic activities. However, to do the best job, these persons will have to begin now to think about fully meeting their responsibilities as voters and citizens. They cannot afford to wait until the last minute, or once again apathy may result in figures as disgraceful as those reported for 1948, or, as has been said elsewhere, "Socialism can easily come to this country without a vote of the people. It can come by default."

MORE OSCAR EWING PROPAGANDA

It is not often that a letter is reproduced in its entirety in the editorial pages of THE JOURNAL; however, in view of the discussions that have arisen concerning Oscar R. Ewing's advocation of federal intervention in health activities, the readers of this periodical will be interested in the letter reproduced here. Its writer claims that "Each communication receives individual attention and thoughtful consideration," but it is obviously a form letter, with only the date and name of the recipient being typed.

FEDERAL SECURITY AGENCY
Washington
Zone 25

November 1, 1951

Dear Mr. H. . . . .:

This will acknowledge your recent communication concerning the Nation's health. Many comments are received by the President and by the Federal Security Agency which indicate wide interest in the President's health proposals, including national health insurance.

National health insurance is not, as some believe, a proposal for socialized medicine. Socialized medicine or State medicine is a system wherein medical personnel work for the Government. Under national health insurance, the freedom of choice of doctor and patient is retained. The personal relationship between a patient and his doctor would continue.

The voluntary health insurance plans now in existence do not and cannot provide adequate benefits at low cost to the large number of people who would be included under national health insurance.

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National health insurance would enable many more of us to get preventive care. It would lighten the burden of heavy medical costs during illness by spreading the costs over the years when we are well, working and earning. At present these costs accumulate when people are sick and least able to pay. We believe that national health insurance would result in better medical care for the Nation as a whole.

Each communication receives individual attention and thoughtful consideration by a staff which studies and suggests ways to improve the Nation's health. Because of the volume of mail, however, it is impossible to reply in a more personal way.

Thank you for your interest.

Sincerely yours,
(Signed) Oscar R. Ewing
Administrator

Enclosures
Mr. G— C. H—
—— Avenue
Jersey City, New Jersey

The name of the recipient of the above letter is not published but can be obtained on request. Otherwise, the letter is reproduced exactly as it was received by THE JOURNAL and speaks for itself. Although Mr. Ewing has been criticized repeatedly for using his office for propaganda purposes, his actions seem to reveal an amazing indifference to such criticism, especially when some of it it has come from members of Congress.

POSTMORTEM EXAMINATIONS ON AIR CRASH VICTIMS

According to a recent report deaths could be reduced if passengers traveled facing toward the rear of the plane. After postmortem examination of 28 victims of an air crash and fire, Teare [1] concludes that in 16 the immediate cause of death was acute flexion of the body over the safety belt. The causes of death included fractured skull (10), fractured cervical spine (1), subarachnoid hemorrhage (1), and injuries to the chest and upper part of the abdomen (16), the latter including ruptured descending thoracic aorta (8).

There was no measurable concentration of carbon monoxide in the blood of 23 victims. The other five, who had 20% or less carbon monoxide in the blood, did not reveal evidence of burns in the internal air passages. This suggests that all 28 were dead or deeply unconscious before the outbreak of fire and that the fate of the occupants would have been the same had no fire occurred.

There was a remarkable similarity of injuries to seven pairs of victims who probably were sitting together. The stewardess, who was in the tail of the aircraft, escaped death. Such observations support the belief that certain parts of aircraft are more dangerous than others when a plane crashes.

With advances in foam-protected fuel tanks the danger of fire in air crashes will diminish and, as indicated by the findings in this study, the hazard might be further lessened by having the passengers seated facing backward.

RELIABILITY OF INTERPRETATION OF CHEST X-RAY FILMS

Roentgenography of the chest has become established as an indispensable procedure in the diagnosis of thoracic disease because it so frequently reveals disease that otherwise would remain unsuspected. The clinical management and even the details of treatment in thoracic disease often are based on the interpretation of shadows observed in roentgenograms. Physicians may hesitate to question the reliability of this method of examination, although they realize well the fallibility of other diagnostic procedures that appear less mysterious to them. Shadows that appear on films must be interpreted in pathological terms. This factor of interpretation recently was subjected to critical inquiry in a careful study [1] that analyzes subjective errors of interpretation of chest x-ray films and contains information significant to all physicians.

The project involved the recording of opinions by six experienced observers, three of whom were radiologists and three of whom were internists, regarding the stability of lesions of pulmonary tuberculosis as recorded on single roentgenograms (posterior-anterior projections) taken at intervals of three months. Each observer independently reported his opinion of each pair of films and subsequently reexamined the same series of films without reference to his original interpretation. The data thus recorded were analyzed by competent biostatisticians who were able to measure the inconsistencies of interpretation and relate the scores of each reader with the others and with his own previous opinions.

The results will surprise any persons who have deep faith in the reliability of roentgenographic methods of examination in thoracic disease. It was revealed that a second observer will disagree with the first observer in about one-third of all instances and, what is more surprising, when the same observer reviews the same film a second time after an appropriately long interval, he will find disagreement between his two opinions in about one-fifth of cases studied.

These results in no way decrease the recognized necessity of roentgenographic examination of the chest, but they do emphasize the fact, long known to many physicians experienced in thoracic disease, that clinical management of thoracic disease must be based on many types of clinical and laboratory data and not on roentgenography alone. Furthermore, the single posterior-anterior chest film frequently does not constitute complete roentgenologic examination, for fluoroscopy, stereoscopy, tomography, and specially projected views may add materially to the accuracy of the examination in special circumstances. There is no substitute for the true clinician, whose difficult task involves synthesis of different types of evidence in formulating his program of management for the patient. In dealing with thoracic disease, the physician must rely heavily on roentgenography, but he should realize that the opinion of the dynamic status of pulmonary tuberculosis would be reversed frequently if a second expert viewed the films or even if the same observer should submit a second opinion after he has forgotten the first report. Anyone who doubts this statement should subject it to adequate test.

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[1] E. Teare, D.: Post-Mortem Examinations on Air-Crash Victims, Brit. M. J. 2: 707 (Sept. 22) 1951.

[1] J. Yerushalmy and others: An Evaluation of the Role of Serial Chest Roentgenograms in Estimating the Progress of Disease in Patients with Pulmonary Tuberculosis, Am. Rev. Tuberc. 64: 225 (Sept.) 1951.

PROLONGED CLOTTING TIME IN HIBERNATION

Svihla[1] and his associates of the Department of Zoology, University of Washington, Seattle, noted that, with a 23-gage hypodermic needle, heart blood can be safely drawn from active ground squirrels but that the same technique is usually fatal with dormant (estivating) squirrels. Necropsies showed that death was due to internal hemorrhages. These squirrels thus acted as if they were suffering from a clotting deficiency of the blood.

Studies of blood clotting were therefore made on active and dormant squirrels. By Howell's technique it was found that on an average the blood of nondormant squirrels coagulates firmly in about eight minutes. The blood of a dormant squirrel requires on an average 49 minutes to form a partial clot, a firm clot never forming.

Svihla believes that this prolongation of blood-clotting time is a purposeful adaptation for the dormant state. During this period the heart beats very slowly, with a marked decrease in the rate of blood flow. A mechanism that would tend to prevent thrombosis during this period would, therefore, be of great survival value to the animal. The factors involved in this prolongation of clotting time are being studied and may yield further information about the mechanism of blood clotting.

CONVERSION OF PALMITIC ACID TO GLUCOSE

The conversion of ingested carbohydrate into fat in animals and man is a commonly recognized and extremely useful phenomenon; the reverse reaction, on the other hand, had been debated for many years, and definite information regarding this transformation would be of great physiological significance. Using the long-lived radioactive isotope C^{14}, Strisower, Chaikoff and Weinman[1] have studied the conversion of the long chain palmitic acid into glucose by rats rendered diabetic with alloxan.The fatty acid used in these studies was labeled in either the 1 or the 6 position and was converted into the neutral fat tripalmitin before testing.

Two types of studies were carried out to measure the conversion of the labeled fatty acid into glucose. One was based on the recovery of the radioactive carbon in the glucose excreted by the diabetic rats in 24 hours, whereas the second depended on the amount of radioactive carbon in the extracellular glucose one hour after the injection of an emulsion of the labeled tripalmitin. In the diabetic rats, 3 to 6% of the injected radioactive carbon was recovered in the urinary glucose. Earlier, it had been reported by this group that about one-half of the amount of glucose turned over in the alloxan diabetic rat is excreted in the urine.[2] Thus it was calculated that at least 6 to 12% of the injected radioactive carbon is incorporated into glucose in 24 hours. From 1.6 to 2.9% of the injected isotopic carbon was calculated to be present in the extracellular glucose in the case of the diabetic rat and only 0.5 to 0.9% in the normal animal.

While the contribution of fatty acid to glucose formation is less than 10% of the total glucose turned over per hour in the diabetic animal, it should be noted that the amount of C^{14} recovered in the glucose is more than half that found in the expired air in this one hour period. Thus, these recent studies show that, when compared to the oxidation of fatty acids to carbon dioxide, the conversion to glucose in the diabetic rat is a highly significant process.

ALTERATIONS OF SODIUM, POTASSIUM, AND CHLORIDE IN DISEASE

The fundamental importance of alterations in the ionic concentrations, particularly of sodium, potassium, and chloride, in various body fluids and tissues in pathologic conditions and concomitant changes in water balance have become well recognized. An excellent current review[1] summarizes recent developments in this general field. As the author points out, the past two decades have been characterized by the introduction of many improved physical and physicochemical procedures, such as the flame photometer and isotopic methods, which have greatly expanded and extended knowledge of ionic and fluid changes in disease. Among the problems under current extensive investigation by the newer techniques is that of the relation of the adrenal glands to ionic balance. Recent studies, the review states, appear to indicate that the primary effect of the "mineral" corticoid hormones of the adrenal is the regulation of the distribution of sodium, potassium, and chloride and water between *intracellular* and extracellular fluid compartments. An earlier view held that the primary effect of these hormones was on renal excretion. The possible effects of 11,17-oxysteroids, including cortisone, on electrolyte and water balance remain equivocal. Ionic alterations in states of dehydration have also been extensively studied during the past few years. While generalization is rather difficult, a loss of intracellular potassium appears to be a consistent finding in dehydration from a variety of causes. This observation has led to the use of potassium salts therapeutically in this condition.

Other situations in which changes in sodium, potassium, and chloride concentrations in body tissues and fluids are discussed by the reviewer include diabetes, neuromuscular disorders, renal disease, cardiovascular pathology, shock, surgical conditions, and fever. In each instance, profound ionic and water alterations may occur, and their correction may present a major therapeutic problem. In fact, it has been stated,[2] that the surgeon must be as much concerned in the surgical patient with physiological fluid replacement as with surgical technique. Certainly, recent advances have emphasized the importance of fluid and electrolyte balance in planning and evaluating modern therapy.

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[1] Svihla, A.; Bowman, H. R., and Ritenour, R.: Prolongation of Clotting Time in Estivating Mammals, Science **114**: 298 (Sept. 21) 1951.

[1] Strisower, E. H.; Chaikoff, I. L., and Weinman, E. O.: Conversion of C14-Palmitic Acid to Glucose: Normal and Diabetic Rats, J. Biol. Chem. **192**: 453, 1951.

[2] Feller, D. O.; Strisower, E. H., and Chaikoff, I. L.: J. Biol. Chem. **187**:57, 1950.

[1] Overman, R. R.: Sodium, Potassium and Chloride Alterations in Disease, Physiol. Rev. **31**: 285 (July) 1951.

[2] Lockwood, J. S., and Randall, H. T.: Place of Electrolyte Studies in Surgical Patients, Bull. New York Acad. Med. **25**: 228 (April) 1949.

GOVERNMENT SERVICES

ARMY

Enlisted Aidmen to Train at Camp Pickett.—Army medical aidmen will be given basic and branch training in the future at Camp Pickett, Va., the Department of the Army announced November 16. Medical replacement training centers currently in operation at Brooke Army Medical Center, Fort Sam Houston, Texas, and Fort George G. Meade, Md., are to be inactivated. Staffs and facilities will be transferred to Camp Pickett. Approximately 1,450 members of the cadre and staff at Fort Meade and 650 from Brooke will be involved in the shift. Personnel now undergoing training at these installations will not be affected, but all new medical service recruits will be assigned to Camp Pickett. Medical service officers and enlisted technical personnel will continue to train at the Texas post. Camp Pickett can accommodate the increasing number of medical aidmen required by the expansion of the Army. A maximum of 8,000 men can be trained at one time by this consolidation.

The medical replacement training center course now includes 16 weeks of intensive field and classroom instruction in the fundamentals of being a soldier, together with specialized training in techniques of administering blood and plasma, drugs, or other emergency measures to the wounded on the battlefield.

AIR FORCE

National Air Council Award.—The National Air Council Award for outstanding achievement in aviation research and experiment was awarded to Maj. John P. Stapp, USAF (MC), by Secretary of Defense Robert A. Lovett at a recent ceremony in the Secretary's office in the Pentagon. The award is made annually to the members of the Air Force and of the Navy who, during the previous fiscal year, have contributed most in the field of aviation research and experiment. The award is not restricted to medical research, but this is the second time aeromedical research activities have been so honored. Maj. Vincent Mazza received the award in 1949 for his work in proving the feasibility of using the ejection seat at high speeds. The Navy recipient of the NAC award for 1951 is Capt. Walter S. Diel, for his work in organizing and directing the Navy's transonic flight program.

The citation outlines Major Stapp's achievement in aviation medical research: the obtaining of data on deceleration forces encountered in aircraft crashes. To determine how much impact a pilot wearing safety harness could withstand and still survive, Major Stapp subjected himself to extreme physical forces while riding a specially constructed rocket-propelled decelerator sled during a series of tests. In performing the tests his normal body weight was increased as much as 45 times in some instances. This is equivalent to a force of nearly four tons. As a result of these tests, Major Stapp has produced valuable data pertinent to future designs of aircraft and safety devices.

Representation at Medical Meetings.—As part of the program to keep Air Force medical practice completely up-to-date, representatives of the Air Force are sent to outstanding medical meetings over the country. Col. Fratis L. Duff, chief of the Preventive Medicine Division for the Air Force Surgeon General, recently attended a three-day symposium on rheumatic fever sponsored by the Minnesota Heart Association at the University of Minnesota. Included in the program was a report on epidemiological studies conducted by the armed forces as well as recent developments in the theory of rheumatic fever. Colonel Duff also attended a recent conference on health and safety in aviation sponsored by the Harvard School of Public Health. The first part of the program was devoted to prevention of human failure in flight, and round table discussions on health maintenance with special reference to coronary heart disease, hypotension, and diabetes. There were also reports on recent advances in study of the disfunctioning of the adrenal cortex resulting from stress situations, respiratory, and circulatory failures. The remainder of the program was devoted to public health and aviation, modern trends in air transportation, equipment design, jet propulsion, and high speed aircraft.

Pathologists Attend Washington Seminar.—Nine U. S. Air Force pathologists attended a special indoctrination course at the Armed Forces Institute of Pathology in November. The course provided guidance on pathological procedure as applied to the Air Force. The seminar was conducted by Col. R. M. Thompson, deputy director of the institute, under the direction of Brig. Gen. Elbert DeCoursey, institute head. Attending were Maj. George J. Heid, stationed at Wright-Patterson Air Force Base, Ohio; 1st Lt. George W. Knabe Jr., Lackland Air Force Base, Texas; 1st Lt. Harold F. Knight, Sampson Air Force Base, N. Y.; 1st Lt. Michael J. Lyons, Maxwell Air Force Base, Ala.; 1st Lt. Albert Nemez, Langley Air Force Base, Va.; 1st Lt. Stanley R. Opler, Westover Air Force Base, Mass.; 1st Lt. Henry E. Pure, Lackland Air Force Base, Texas; and 1st Lt. Clarence Robinson Jr., Francis E. Warren Air Force Base, Wyo.

Combine Medical Research and Human Resources Division.—A newly formed Aeromedical and Human Resources Division has been established in the office of Air Force Deputy Chief of Staff for Development. The new division has been created by combining the research and development missions of the former Medical Research Division of the Office of the Surgeon General, USAF, with the former Human Resources Division of the Directorate of Research and Development. The combined division maintains staff cognizance over medical and human resources research and development programs for the Air Force. Individual branches include aviation medicine, human engineering and training, personnel and manpower, and human relations. Heading the new division is Col. A. P. Gagge, formerly chief of the medical research division. Alfred H. Lawton, M.D., is medical research advisor and Glen Finch, Ph.D., is human resources research advisor.

New Chief for Medical Consultants Division.—Col. Oscar S. Reeder, USAF (MC), has assumed duties as chief of the Medical Consultants Division for the Office of Air Force Surgeon General. As head of this division, he will evaluate, plan, and administer the professional aspects of the prophylaxis, diagnosis, and treatment of the sick and injured. The division further assists and advises the Surgeon General in all matters pertaining to the professional care of patients. The organization and programs of Air Force medical installations and the quality, numbers, distribution, and assignment of medical specialists are also supervised by this division. Colonel Reeder replaces Col. John F. Dominick, who has been assigned to headquarters, U. S. Air Force in Europe, for duty as chief of the Professional Services Division.

Personal.—Dr. Louis H. Bauer, president-elect of the American Medical Association, was recently designated chairman of the semiannual National Consultants Conference convened by the Air Force Surgeon General.

VETERANS ADMINISTRATION

Residencies in Psychiatry Available.—Residencies in psychiatry are available at the Veterans Administration Hospital, Hines, Ill., beginning January 1, 1952, for a three year period. The residency program is under the direction of the Department of Psychiatry, University of Illinois. The program of lectures, conferences, and seminars at Hines is coupled with rotation for special services in Chicago. The training is fully accredited by the American Board of Psychiatry and Neurology. The hospital is within commuting distance of all other psychiatric facilities in the Chicago area.

ORGANIZATION SECTION

SCIENTIFIC EXHIBIT—CHICAGO SESSION

Several special features will be presented in the Scientific Exhibit at the Chicago Session, according to present plans.

Heart disease will be shown in several exhibits, with a question and answer conference in an adjoining area. The American Heart Association, the Illinois Heart Association, and the Chicago Heart Association are cooperating, with Louis N. Katz, M.D., Chicago, acting as chairman. The subject of diabetes will be presented by the American Diabetes Association, with several exhibits and a question and answer conference. Howard F. Root, M.D., Boston, is arranging the program.

An exhibit symposium on cancer is being arranged with the cooperation of the Illinois Division of the American Cancer Society. Various exhibits will cover different phases of the cancer problem. The exhibit symposium on overweight, nutrition, and health, which was shown at Atlantic City and Los Angeles, will be repeated in Chicago, with such changes as seem timely. A question and answer conference will be conducted in an adjoining area. James R. Wilson, M.D., Chicago, is arranging the program. The special exhibit on fractures will be continued, with demonstrations in six booths. Frederick A. Jostes, M.D., St. Louis, is chairman of the committee in charge.

The Section on Preventive and Industrial Medicine and Public Health will again feature an exhibit symposium on noise and health, with the cooperation of the Council on Physical Medicine and Rehabilitation and the Council on Industrial Health of the American Medical Association, the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology, the Acoustical Society of America, and the Acoustical Materials Association. Howard A. Carter, Chicago, will be in charge.

The Section on Physical Medicine and Rehabilitation, with the cooperation of the American National Red Cross, the Council on Physical Medicine and Rehabilitation of the American Medical Association, and various other agencies, will present the essential features of artificial respiration. The back pressure-arm lift method will be demonstrated in the booth, and plans are under consideration for demonstrations in Lake Michigan, in a location adjoining Navy Pier. Carl J. Potthoff, M.D., Washington, D. C., is in charge of the program.

The Section on Urology will continue the discussion periods inaugurated last year, in which all the urological exhibits are discussed at certain hours of the day by competent urologists. Roger W. Barnes, M.D., Los Angeles, is chairman of the section exhibit committee.

Motion pictures will be shown continuously throughout the week in two motion picture theaters adjoining the Scientific Exhibit. The Committee on Medical Motion Pictures of the American Medical Association will preview all films submitted. It is expected that an outstanding program will be arranged.

Each of the 19 Sections of the Scientific Assembly will sponsor a group of exhibits dealing with its particular specialty in medicine. Application blanks for space in the Scientific Exhibit and for time on the motion picture program may be obtained from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10, Ill. Applications close on Jan. 15, 1952.

Portable Exhibits

A new style of exhibit is being developed by the Association's Bureau of Exhibits to fill a need for attractive portable exhibits. The weight of these units is 40 to 60 lb. each, and they are small enough to be placed in the rear seat of an automobile and taken to such group sessions as those of the Parent Teachers Association, women's clubs, and school science classes.

The exhibit on "School Health Services" is now available and a portable exhibit on "Home Accidents" is under construction, as well as a unit dealing with the subject of appendicitis. The portable exhibit on appendicitis will be available on both a loan and a purchase basis. The Association has assumed all the creative cost and the cost of the initial unit. The state and county medical societies may obtain different units at a marked saving. Each portable exhibit on appendicitis will be provided with a shipping case. The units will cost $285 each.

Animals in Research

A new exhibit on "Animals in Research" has been developed by cooperation with representatives from the National Society for Medical Research, veterinary groups, and the Bureau of Exhibits.

The positive gains obtained through the use of animals in research is depicted in the exhibit, which emphasizes the benefits accruing to farm animals and household pets, as well as the benefits obtained by humans through animals in research. The need for continued research is set forth in one portion of the exhibit entitled "The Benefits of the Future."

A continuous projector is included in the central portion of the exhibit devoted to a series of slides entitled "Thanks to Animals." Here is shown the part that has been played by animals in the treatment of obesity, the development of the iron lung, the "blue baby" operation, bronchoscopy, vaccination for smallpox, immunization for diphtheria, the benefits of the sulfonamides, and the treatment of burns. This exhibit is available to state and county medical societies on a loan basis without charge. The only cost involved is the transportation of the exhibit.

LIBRARY LENDING SERVICE

Beginning Jan. 1, 1952, the A. M. A. Library will offer its Periodical Lending and Package Library Services free to the members of the American Medical Association. Members of the Student American Medical Association are also eligible for the same service, but their requests must bear the signature of a faculty council member. Hereafter, the fee to nonmembers will be 50 cents for each package library and 15 cents for each periodical borrowed.

REGISTRATION AT CLINICAL SESSION, LOS ANGELES, DEC. 4-7, 1951

Alabama	7
Alaska	1
Arizona	47
Arkansas	6
California	2,184
Los Angeles	1,317
Canal Zone	1
Colorado	32
Connecticut	12
Delaware	1
D. C.	25
Florida	7
Georgia	5
Hawaii	5
Idaho	12
Illinois	97
Indiana	38
Iowa	27
Kansas	11
Kentucky	5
Louisiana	15
Maine	2
Maryland	5
Massachusetts	15
Michigan	31
Minnesota	22
Mississippi	3
Missouri	18
Montana	17
Nebraska	22
Nevada	9
New Hampshire	1
New Jersey	14
New Mexico	18
New York	46
North Carolina	3
North Dakota	11
Ohio	30
Oklahoma	21
Oregon	32
Pennsylvania	29
Puerto Rico	0
Rhode Island	2
South Carolina	3
South Dakota	4
Tennessee	11
Texas	50
Utah	30
Vermont	1
Virginia	10
Washington	54
West Virginia	3
Wisconsin	22
Wyoming	5
From foreign countries	20
Total	4,419

MEDICAL NEWS

CONNECTICUT

Congenital Heart Disease Clinic.—A clinic for "blue babies" and other children with congenital heart malformations amenable to surgery has been opened at the Grace-New Haven Community Hospital by the Children's Bureau with the cooperation of the state health department. This is the first of such centers that the Children's Bureau plans to set up in its expansion program of financial assistance to states for this purpose. Beginning this fiscal year the Children's Bureau intends to allocate $100,000 annually for this activity. Surgical and hospital care and related services will cost an average of about $1,000 for each baby treated, according to the bureau. It is reported that 7,335 infants died in 1948 of congenital malformations of the cardiovascular system.

DELAWARE

Society News.—At the December meeting of the Delaware Academy of General Practice in Wilmington, Dr. Robert B. Greenblatt, professor of endocrinology at the Medical College of Georgia, Augusta, spoke on "The Sexual Attributes and Potential of Man—An Endocrine Study." The following officers, all of Wilmington, were elected for 1952: Dr. J. Jesse Selinkoff, president; Dr. Arthur J. Heather, vice-president; Dr. Marjorie E. Conrad, secretary, and Dr. Harry Taylor, treasurer.

GEORGIA

Society News.—At the November meeting of the Atlanta Eye, Ear, Nose, and Throat Society the following officers were elected for 1952: Dr. Ferdinand Calhoun Jr., president; Dr. William C. Hathcock, vice-president, and Dr. James T. King, reelected secretary-treasurer.

Symposium on Alcoholism.—The Georgia Commission on Alcoholism will hold a symposium on alcoholism in the Atlanta Municipal Auditorium on January 18. Out-of-state speakers on the program include three from New Haven, Conn.: Raymond G. McCarthy, M.A., executive director, Yale (University) Plan Clinic; Leon A. Greenberg, Ph.D., assistant director, Laboratory of Applied Physiology, Yale, and Ralph M. Henderson, LL.B., Section of Alcohol Studies, Yale. The fourth speaker is Dr. Ebbe C. Hoff, Richmond, medical director, Virginia Program on Alcoholism.

ILLINOIS

Report on Communicable Diseases.—The number of Illinois deaths caused by 6 of 10 major communicable diseases decreased during the first half of the year as compared to the similar period in 1950, the state department of public health announced December 5. The greatest decrease was reported in deaths from all forms of tuberculosis, which dropped from 1,116 during the first half of 1950 to 936 the first six months this year. For pulmonary tuberculosis alone, deaths dropped from 1,029 to 895. Whooping cough fatalities decreased from 20 to 7, influenza deaths from 94 to 83, and meningitis deaths from 28 to 25. No death was reported as a result of diphtheria in the first six months this year as against two for the same period last year. Poliomyelitis, which resulted in nine fatalities in the first half of 1950, caused six deaths this year. Measles, however, caused 26 deaths this year compared to 4 last year. Pneumonia deaths increased from 1,253 to 1,360, encephalitis deaths from 5 to 15, and syphilis fatalities from 226 to 254.

Chicago

Society News.—The North Side Branch of the Chicago Medical Society will hear Dr. John M. Waugh, head of the section in general surgery, Mayo Clinic, Rochester, Minn., speak January 3 on "Sphincter Conservation in the Management of Carcinoma of the Rectum." The meeting will be held at the Drake Hotel at 8 p. m. Dr. Paul H. Holinger, professor of bronchoesophagology, University of Illinois, will also speak on "Management of the Patient with Hoarseness."

Joint Meeting on January 16.—The Chicago Medical Society and the Institute of Medicine will meet jointly January 16 at 8 p. m. in the John B. Murphy Auditorium. Dr. Marion A. Blankenhorn, director of the department of internal medicine at Cincinnati General Hospital, will speak on "Pneumonia in the General Hospital—Present Day Problems." The second speaker will be Dr. Carl V. Moore, professor of medicine at the Washington University School of Medicine, St. Louis, who will discuss "Recent Advances in Management of Blood Dyscrasias."

MARYLAND

Symposium on the Physician in Court.—A discussion of the physician in court was presented in Baltimore December 7. Expert testimony was given from the viewpoint of trial counsel, industrial medicine, traumatic surgery, psychiatry, and the jurist. Speakers were Robert E. Coughlan Jr., member of the Baltimore City Bar Association; Dr. Thomas C. Wolff, associate professor of medicine at the University of Maryland, Baltimore; Dr. George O. Eaton, assistant professor of orthopedic surgery at Johns Hopkins University School of Medicine, Baltimore; Dr. Manfred S. Guttmacher, medical officer, Supreme Bench of Baltimore, and the Hon. W. Conwell Smith, chief judge, Supreme Bench of Baltimore. The program was arranged by the Joint Committee on Medicolegal Problems of the Baltimore City Bar Association and the Medical and Chirurgical Faculty of the State of Maryland.

MASSACHUSETTS

Tufts Medical Alumni Lecture.—The annual medical alumni lecture will be given January 10 at 11 a. m. at Tufts College Medical School by Dr. Jesse E. Edwards, consulting physician, Mayo Clinic, Rochester, Minn. His subject will be "Advances in Pathology of Cardiovascular Diseases." This lecture is given annually by a distinguished alumnus of Tufts College Medical School who is not on its faculty. Physicians and students are invited to attend.

MINNESOTA

Course in Clinical Neurology.—Dr. Harold G. Wolff, professor of medicine and associate professor of psychiatry at Cornell University Medical College, New York, will give the annual J. B. Johnston Lecture at 8:15 p. m. January 30. His subject will be "On the Nature of Pain." He will also participate in a continuation course for physicians in clinical neurology that will be presented at the Center for Continuation Study January 28-February 9, 1952. Other visiting faculty members for the course include Dr. Benjamin Boshes, Evanston, Ill.; Dr. H. Houston Merritt, New York, and Dr. Henry G. Schwartz, St. Louis. Dr. A. B. Baker, professor and head of the division of neurology, is chairman for the course and will be joined by members of the faculty of the University of Minnesota Medical School and the Mayo Foundation.

MISSISSIPPI

State Secretary Ends 30 Years in Office.—Dr. Tom Dye, Clarksdale, resigned December 1 as secretary of the Mississippi State Medical Association, a position he had held continuously for more than three decades. Dr. George E. Twente, Jackson, has been appointed to fill the unexpired term of office. After graduation from Tulane University, Dr. Dye practiced successively in Florence, Sherard, and Longwood before establishing his residence at Clarksdale. In 1909 he was elected first district councilor of the Mississippi State Medical Association and served seven years in this office until his election as president in 1916.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

MISSOURI

Society Election.—At the annual meeting of the Kansas City Southwest Clinical Society November 28, the following officers were elected: Dr. John A. Growdon, Kansas City, president; Dr. Hubert M. Parker, Kansas City, president-elect; Dr. Galen M. Tice, Kansas City, Kan., secretary; Dr. E. Kip Robinson, Kansas City, treasurer, and Dr. Maurice J. Ryan, Kansas City, Kan., director of clinics.

Study Club Program.—The following programs for 1952 have been arranged by the General Practitioners Study Club of Greater St. Louis. All speakers are from St. Louis.

January 16, Robert E. Ryan, Headache—Migraine and Its Differential Diagnosis and Treatment.
February 20, Roland M. Klemme, New Methods of Diagnosis in Neurosurgery.
March 19, Joseph Grindon, Discussion of the Common Skin Diseases and Their Treatment.
April 16, John A. Virant, Ear, Nose, and Throat Problems of Interest to the General Practitioner.

NEW YORK

Staff Journal Club.—This group, formed with the cooperation of the Medical Society of the County of Wyoming, meets once a month to promote understanding between specialists on local hospital staffs and general practitioners in the county. Meetings are held at the home of one of the doctors, with all members of the county medical society invited to attend.

Congenital Heart Disease Clinic.—The University of Rochester School of Medicine and Dentistry has expanded and coordinated its study of congenital heart disease into a regular clinic facility. The clinic is a joint project of the departments of radiology, medicine, surgery, and pediatrics under the direction of Dr. George H. Ramsey, professor of radiology. Provision is being made for clinic, division, and private patients.

Academy Desires Research Papers.—The New York Academy of Medicine is seeking research papers by investigators in New York and neighboring cities within a radius of 100 miles to be presented at evening meetings April 23 and 24. The presentations must be the results of original research in clinical medicine or surgery. Preference will be given papers that have not been presented before a national or local society (other than intramural). An abstract of the proposed presentation in quadruplicate, not to exceed 500 words, should be sent to the secretary of the Committee on Medical Education of the academy, 2 East 103rd St., New York 29, not later than February 15. A formal invitation to participate will then be extended by the committee.

New York City

Pollitzer Lecture.—The department of dermatology and syphilology of the New York University Post-Graduate Medical School announces that the second Sigmund Pollitzer Lecture will be given by Dr. Jerome W. Conn on February 1 at 4 p. m. in the Main Lecture Hall of the College of Medicine. Dr. Conn is professor of internal medicine at the University of Michigan Medical School, Ann Arbor, and chief of the division of endocrinology and metabolism at University Hospital. The title of his lecture will be "The Influence of Adrenal Cortical Activity on the Electrolyte Composition of Thermal Sweat."

Hospital Superintendent Joins Veterans Administration.—Dr. Alexander W. Kruger, general medical superintendent of the city's department of hospitals, resigned November 30 to join the department of medicine and surgery of the Veterans Administration in Washington, D. C., the *New York Times* reported. Dr. Kruger has been associated with the department of hospitals since 1934 when he became executive physician at Morrisania City Hospital in the Bronx. As general medical superintendent he had charge of the administration of the eleven municipal hospitals in the Bronx, Brooklyn, and Queens.

NORTH CAROLINA

Dedicate Industrial Medical Center.—Dedication of the medical center of the Ecusta Paper Corporation, a subsidiary of Olin Industries, Inc., of Pisgah Forest, was held November 9. Guests of honor included Dr. Charles L. Newland, Brevard, president, Transylvania County Medical Society, and several society members, and the following visitors: Dr. Edward C. Holmblad, Chicago; Dr. George H. Gehrmann, Wilmington, Del.; Dr. Walter R. Berryhill, Chapel Hill; Haywood M. Taylor, Ph.D., Durham, and Dr. George T. Harrell, Winston-Salem.

TEXAS

Dedicate Experimental Science Building.—Detlev W. Bronk, Ph.D., president of Johns Hopkins University, was the speaker at the dedication of the experimental science building of the University of Texas, Austin, on December 7. The new building will house the biochemistry institute and the department of zoology of the university. The Texas Branch of the Society of American Bacteriologists and the Texas Academy of Science held their annual meeting in connection with the dedication ceremonies.

Scholarship in Preventive Medicine.—Following the recent death of Dr. Joseph B. Kass, Detroit, of the class of 1913 at the University of Texas Medical School, Galveston, it was learned that he had made provision for the endowment of a research scholarship in preventive medicine. This scholarship had been maintained by Dr. Kass since 1922. It was established for the encouragement of research in preventive medicine, and is awarded annually to a medical student by a special committee.

WEST VIRGINIA

Diabetes Committee Discharged.—The West Virginia State Medical Association's committee on diabetes has been officially discharged by the council with thanks expressed by the council members for the work done since the committee was created months ago. It was agreed that if the committee were kept alive, there would be considerable overlapping of activities with the state diabetes association.

Annual Pilgrim Meet.—The annual "Pilgrim Meet" of the West Virginia Obstetrical and Gynecological Society was held in Columbus, Ohio, November 10. Those present attended operative clinics at the new Ohio State University Hospital in the morning, and the program was devoted to didactic lectures in the afternoon. Dr. Allan C. Barnes, chairman, department of obstetrics and gynecology, Ohio State University College of Medicine, Columbus, was host at a cocktail party at his home preceding the banquet. The "Pilgrim Meet" is an annual affair organized by the late Dr. Harry G. Steele of Bluefield and is usually held during the winter months.

GENERAL

President of Rockefeller Foundation.—Dean Rusk, Assistant Secretary of State for Far Eastern Affairs, has been invited to become president of the Rockefeller Foundation on the retirement of Chester I. Barnard, when Mr. Barnard reaches the age limit June 30. Mr. Rusk has been a trustee of the foundation since April, 1950.

Clinic Administrators Meeting.—The American College of Clinic Administrators will meet January 13-15 at the Conrad Hilton Hotel, Chicago, under the presidency of Dr. Robert J. Wilkinson Jr., Huntington, W. Va. Eight papers will be presented. At the banquet January 14 the Hon. Rush D. Holt, Weston, W. Va., former U. S. senator from West Virginia, will speak on "Fable of the Free Lunch."

Meetings on Surgery of the Hand.—The American Society for Surgery of the Hand will hold its annual meeting January 25 at the Palmer House, Chicago, under the presidency of Dr. Michael L. Mason, Chicago. The following will speak by invitation:

J. Leonard Goldner, Durham, N. C., Deformities of the Hand Incident to Pathology of the Extensor and Intrinsic Muscle Mechanisms.
Frederick L. Liebolt, New York, Luxation of the Distal Radioulnar Joint.
Carmelo C. Vitale, Brooklyn, Reconstructive Surgery for Ulnar Shaft Defects in Growing Children.
Frederick H. Vom Saal, New York, Intramedullary Fixation of the Hand and Fingers.

National Board of Examiners.—On December 1 Everett S. Elwood, executive secretary of the National Board of Medical Examiners since 1921, reached the retirement age. He has been succeeded by Dr. John P. Hubbard, Philadelphia, who was appointed associate secretary in 1950. Mr. Elwood will continue his association with the board as editor and consultant on state medical board relations. Dr. Hubbard, who is also professor of public health and preventive medicine at the University of Pennsylvania, has been working with the national board during the past 18 months, revising the examinations in accord with advances in medical education.

Society Elections.—Officers elected November 2 at the annual meeting of the Central Society for Clinical Research include: Dr. W. Barry Wood, Jr., St. Louis, president; Dr. George E. Burch, New Orleans, vice-president, and Dr. Kenneth G. Kohlstaedt, Indianapolis, secretary-treasurer.——Dr. Herbert C. Schenck, Atlanta, Ga., was elected president of the Southern Tuberculosis Conference at its fall meeting in Chattanooga, Tenn. He is director of the Tuberculosis Control Division, Georgia Department of Public Health. Other new officers are K. W. Grimley, executive secretary, Alabama Tuberculosis Association, vice-president, and Frank W. Webster, executive secretary, North Carolina Tuberculosis Association, secretary-treasurer. The Southern Trudeau Society, medical section of the conference meeting at the same time, elected Dr. James D. Murphy of Oteen, N. C., president. Dr. Murphy is chief of the surgical service, Veterans Administration Hospital, Oteen. Dr. David H. Waterman, Knoxville, Tenn., was elected vice-president, and Dr. Perry M. Huggin, Knoxville, was reelected secretary.

Report of Multiple Sclerosis Society.—The first annual report of the National Multiple Sclerosis Society records the results of the first five years of work by the society from October, 1946, when it was formed, to July, 1951. The society has grown to a national membership of over 19,000 with twelve chapters. It has raised $739,955. About 47 cents of each dollar spent by the society since its formation supported its 17 research projects. Although most projects deal with basic research, seven multiple sclerosis clinics have been established to provide centers where treatment that may be helpful can be evaluated and physiotherapy given where facilities permit. The research program covers such studies as allergy, myelin destruction, psychological factors, evaluation of corticotropin (ACTH), biochemical studies, and virus studies. Most of the society's financial support (70%) has come from patients, their relatives, and friends, and the remainder from charitable foundations. In the past year the society has published a medical manual for physicians aimed at keeping them posted on all current developments in the field, and a rehabilitation manual designed for physicians and physiotherapists.

College of Surgeons Section Meeting.—The American College of Surgeons will hold a section meeting January 10-12 at The Tutwiler in Birmingham, Ala. At the opening meeting Dr. Fred W. Rankin, clinical professor of surgery at the University of Louisville (Ky.) School of Medicine, will speak on "Carcinoma of the Gastrointestinal Tract." The program includes the following panel discussions and symposiums:

Hysterectomy: Total, Subtotal, or Vaginal, William N. Jones, Birmingham, moderator, with Louise H. Branscomb and Samuel Buford Word, both of Birmingham.
Intestinal Obstruction, Ira A. Ferguson, Atlanta, moderator, with Arthur I. Chenoweth, Birmingham; Walter G. Maddock, Chicago, and Marcus M. Ravitch, Baltimore.
Symposium on Trauma, Peter B. Wright, Augusta; James H. Semans, Atlanta, and Marcus M. Ravitch, Baltimore.
Symposium on Cancer, James Barrett Brown, St. Louis; Champ Lyons, Birmingham; R. Lee Clark Jr., and coauthor, George J. Ehni, both of Houston.
Breast Tumors, I. Mims Gage, New Orleans, moderator, with Joseph A. Cunningham, Birmingham; James Elliott Scarborough Jr., Atlanta, Ga., and Hoke Wammock, Augusta.
Bleeding from the Gastrointestinal Tract, Fred W. Rankin, moderator, with Ralph F. Bowers, Memphis; Joseph M. Donald, Birmingham, and David Henry Poer, Atlanta.

At the dinner meeting January 11 Dr. Paul R. Hawley, Chicago, director of the American College of Surgeons, will speak on "Your College: What It Means to You and to Me." A special program for otolaryngologists and ophthalmologists will be given on January 12. It includes a symposium on malignant exophthalmos by Drs. Arthur M. Freeman, Donald B. Sweeney, and Beamon S. Cooley Jr., Birmingham.

Venereal Diseases in Seven Cities.—The Statistical Service and the Social Hygiene Division of the New York Tuberculosis and Health Association published December 3 a tabulation on cases of syphilis and gonorrhea reported in seven leading American cities for 1941-1951 inclusive. The figures are based on reports to the United States Public Health Service by New York, Chicago, Philadelphia, Los Angeles, Detroit, Baltimore, and Cleveland. For each city there has been a definite decline in the number of cases of syphilis (all stages) reported between 1941 and 1951 and an increase in the total number of cases of gonorrhea reported for these cities in the same period. A similar trend of fewer cases of syphilis and more cases of gonorrhea was evidenced in the reports for the United States as a whole; 477,841 syphilis cases of all stages in 1941, and 231,567 for the year 1950. Cases of primary and secondary syphilis, which represent the categories that are contagious and of major public health interest, likewise declined in numbers. As to congenital syphilis, the trend is also downward. A total of 1,040 cases was reported in 1941 in New York City and 1,029 in 1942. By 1950 these reports dropped to 485 and to 510 in 1951. The other cities reported a similar or even larger decline. Gonorrhea cases reported for the entire United States reached a peak in the years 1946 (364,853) and in 1948 (363,014). In 1941 the total reported was 191,306, and in 1950, the last year for which a report is available, the total was 304,066.

FOREIGN

Symposium on the Suprarenal Cortex.—The Colton Research Society and the University of Bristol will present a symposium on the suprarenal cortex March 31-April 4 in Bristol, England. The approximate cost will be £5. Guest speakers and their subjects are as follows:

Harry J. Robinson, Rahway, N. J., Role of the Adrenal Glands in Infection and Intoxication.
Hudson Hoagland, Ph.D., Shrewsbury, Mass., Adrenal Steroids and Personality Disorders.
Choh R. Li, Ph.D., Berkeley, Calif., Preparation and Assay of ACTH.
Dwight J. Ingle, Ph.D., Kalamazoo, Mich., Role of the Adrenal Cortex in Homeostasis.
George W Thorn, Boston, Clinical Applications of ACTH and Steroid Hormones.
F. Verzar, Basel, Switzerland, Nature of Adrenal Cortical Secretion.
Guy F. Marrian, F.R.S., Edinburgh, Metabolism of the Adrenocortical Steroids.
Solly Zuckerman, F.R.S., Birmingham, England, Suprarenal Cortex and the Gonads.
C. R. Broster, F.R.C.S., London, Surgery of the Suprarenal Gland with Especial Reference to the Cortex.
Gordon R. Cameron, F.R.S., London, ACTH, Steroid Hormones and Tissue Changes.
Marthe Vogt, Edinburgh, Control of the Secretory Activity of the Suprarenal Cortex with Special Reference to the Isolated Preparation.
C. J. O. R. Morris, London, ACTH Fractions and Their Mode of Action on the Suprarenal Cortex.
Frank G. Young, F.R.C.S., Cambridge, Physical and Chemical Properties of ACTH.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 24-26, 1952. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery 4.

ARIZONA:* *Examination.* Phoenix, Jan. 19. *Reciprocity.* Phoenix, Jan. 15-17. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

ARKANSAS:* *Regular.* Little Rock, June 5-6. Sec., Dr. Joe Verser, Harrisburg. *Eclectic.* Little Rock, June 5-6. Sec., Dr. Frank C. Smith, 2301 Broadway, Little Rock.

CALIFORNIA: *Written.* Los Angeles, Feb. 18-21; San Francisco, June 23-26; Los Angeles, Aug. 18-21; Sacramento, Oct. 20-23. Application must be received at least two weeks prior to date of examination. *Oral for Reciprocity Applicants.* Los Angeles, Jan. 12; Los Angeles, Feb. 16; San Francisco, June 21; Los Angeles, Aug. 16; San Francisco, Nov. 8. Applicants are requested not to arrange to come to an oral examination until they receive notice from the Credentials Committee. *Oral and Clinical for Foreign Medical School Graduates.* Los Angeles, Feb. 17; San Francisco, June 22; Los Angeles, Aug. 17; San Francisco, Nov. 9. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Board of Pediatrics; member of the American Academy of Pediatrics; served during World War I; for many years on the staff of Children's Hospital; died October 21, aged 57, of carcinoma of the larynx.

Kerr, Johnston Harper ⊕ Akron, Iowa; University of Nebraska College of Medicine, Omaha, 1904; served overseas during World War I; past president of the Plymouth County Medical Society and Sioux Valley Medical Association; on the visiting staff of Dakota Hospital in Vermillion, S. D., and Mercy Hospital in LeMars; owner and director of the Akron Hospital from 1920 to 1951; died in the Akron Community Hospital October 1, aged 75, of coronary occlusion.

Long, Frederick, San Francisco; University of California Medical School, San Francisco, 1910; member of the American Medical Association; member of the city board of health; died in Franklin Hospital October 19, aged 68, of cerebral hemorrhage.

Lyons, Harry Eugene ⊕ Erie, Pa.; University of Buffalo School of Medicine, 1909; served during World War I; for nine years a member of the city board of health; affiliated with St. Vincent's Hospital, where he died October 4, aged 67, of arteriosclerotic heart disease.

Morgenstern, James A., Easton, Pa.; College of Physicians and Surgeons, Baltimore, 1907; member of the American Medical Association; school examining physician; on the courtesy staff of Easton Hospital, where he died September 5, aged 70, of chronic myocarditis.

Morman, William Daniel ⊕ St. Louis; Howard University College of Medicine, Washington, D. C., 1929; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; instructor, department of otolaryngology, St. Louis University School of Medicine; affiliated with St. Mary's Infirmary, People's Hospital, and the Homer G. Phillips Hospital, where he died October 9, aged 49.

Parris, Briggs, *Geraldine, Ala.; University of Tennessee College* of Medicine, Memphis, 1913; member of the American Medical Association; died recently, aged 65, of a heart attack.

Reichelderfer, Vest Dresbach ⊕ Amanda, Ohio; Starling-Ohio Medical College, Columbus, 1913; served during World War I; affiliated with Lancaster-Fairfield County Joint Hospital in Lancaster, where he died September 28, aged 60, of coronary disease.

Rohm, Uriah Franklin, Carnegie, Pa.; Medico-Chirurgical College of Philadelphia, 1902; member of the American Medical Association; on the visiting staff of Western Pennsylvania Hospital in Pittsburgh; died November 3, aged 75, of coronary occlusion.

Savage, William Elliott, Portland, Ore.; Harvard Medical School, Boston, 1920; killed November 7, aged 58, in an automobile accident.

Schneider, Louis ⊕ Newark, N. J.; Medico-Chirurgical College of Philadelphia, 1908; past president of the Essex County Medical Society; on the staff of Presbyterian Hospital, where he died November 6, aged 67, of cerebral hemorrhage, arteriosclerosis, myocarditis and diabetes mellitus.

Schwerer, Herman Mayes ⊕ Canton, Ill.; University of Illinois College of Medicine, Chicago, 1934; past president of the Fulton County Medical Society; affiliated with Graham Hospital; died October 13, aged 44, of coronary thrombosis.

Seale, Enoch Carruth, Prescott, Ariz.; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; mayor of Prescott; served during World War I; at one time associated with the U. S. Public Health Service Reserve, resigning from the U. S. Veterans Hospital in Whipple in 1923; died October 11, aged 63, of coronary disease.

Sheehan, Katharine Cecelia, Salem, Mass.; Tufts College Medical School, Boston, 1908; member of the American Medical Association; for many years school physician; died October 21, aged 78.

Shepler, Joseph Robert ⊕ Doylestown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1935; served during World War II; died in Abington (Pa.) Memorial Hospital November 7, aged 43, of cerebral hemorrhage.

Simons, Irving ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1908; member of the American Urological Association; served during World War I; affiliated with Mount Sinai, Montefiore, and New York hospitals and the Hospital for Joint Diseases; died in Mount Vernon, N. Y., November 10, aged 67, of cerebral hemorrhage.

Smith, George Henry Jr., Brooklyn; Long Island College Hospital, Brooklyn, 1898; member of the American Medical Association; on the associate staff of Prospect Heights Hospital; died recently, aged 75, of heart disease.

Smith, Thomas Jefferson, Meridian, Miss.; Atlanta School of Medicine, 1911; died September 4, aged 66.

Stacey, John Wallace ⊕ Tucson, Ariz.; University of Manitoba Faculty of Medicine, Winnipeg, Man., Canada, 1925; member of the American College of Chest Physicians; served during World War II; died in St. Mary's Hospital November 11, aged 50, of brain tumor.

Stegner, Adam, Wyoming, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1892; died November 7, aged 82, of coronary thrombosis.

Stella, Giovanni ⊕ New Rochelle, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1906; died October 30, aged 66, of coronary thrombosis.

Stevenson, Alexander Montgomery, Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1895; died in Atlantic City Hospital October 24, aged 87, of intertrochanteric fracture of the right hip.

Stoever, Harry Von H., La Jolla, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1891; died October 3, aged 82, of cerebral hemorrhage.

Strange, John William ⊕ Loogootee, Ind.; Medical College of Indiana, Indianapolis, 1903; served as county coroner and as mayor of Loogootee, for many years secretary of the county *board of health; affiliated with Daviess County Hospital* in Washington; in September, 1950, was chosen "General Practitioner of the Year" for the state of Indiana, by the Indiana State Medical Association; vice-president and a director of the Union Bank; died October 15, aged 75, of coronary occlusion.

Strawn, Estil Young, St. Joseph, Mo.; Howard University College of Medicine, Washington, D. C., 1913; served during World War I; died October 5, aged 64.

Sugg, Herbert Reid ⊕ Clinton, Iowa; Rush Medical College Chicago, 1896; past president of the Iowa State Department of Health; an Associate Fellow of the American Medical Association; died October 18, aged 77, of chronic myocarditis and hypertension.

Swart, Dennis S. ⊕ Portland, Ore.; University of Oregon Medical School, Portland, 1918; died October 31, aged 62, of a heart attack.

Talley, William Warren, New York; Medical College of Virginia, Richmond, 1887; College of Physicians and Surgeons, medical department of Columbia College, New York, 1888; formerly chief of the division of communicable diseases with the city health department; died in Richmond, Va., November 12, aged 87, of carcinoma of the lung.

Taylor, David Torrens, Abington, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; died October 27, aged 78, of coronary thrombosis.

Taylor, John Thomas, Cottonwood, Ariz.; Barnes Medical College, St. Louis, 1902; died in Prescott October 13, aged 74, of uremia.

Waddell, William Edgar ⊕ Lexington, Va.; University of Virginia Department of Medicine, Charlottesville, 1934; served during World War II and was awarded the Silver Star, Purple Heart, and Bronze Arrowhead; specialist certified by the American Board of Surgery; died October 7, aged 41, of bronchogenic carcinoma.

Weinstein, Henry, New York; Cornell University Medical College, New York, 1907; died in Lebanon Hospital July 18, aged 67, of coronary thrombosis.

FOREIGN LETTERS

ITALY

Meeting of Ionian Medical Society.—The Ionian Society of Physicians and Surgeons held a meeting in Taranto, at which Professor Natale discussed the tonsillectomy problem. He alluded to the functional prerogatives of the tonsil (hemodynamic, protective, and endocrine) and concluded that, despite the many difficulties that accompany surgical intervention, tonsillectomy remains a therapeutic method that has no substitute, especially when the lesion has become so chronic that the organ does not fulfill its functional requirements.

Professor Buonsanti, the chairman of the meeting, discussed major traumatic dislocations. His 17 years of experience in the City Hospital of Taranto led to the following observations.

1. Major traumatic dislocations, i. e., those involving the hip, the shoulder, and the elbow, represent only 1.16% of the traumatic lesions that he observed. Dislocations of the shoulder are the commonest (0.72%), followed by those of the elbow (0.33%); less numerous are those of the hip (0.11%).

2. Traumatic dislocations of the hip and of the elbow are determined by leverage, while that of the shoulder is determined by direct trauma.

3. A dislocation without complications presupposes conservation of the muscle tone; to its interplay of action and counterreaction is due the displacement of the head of the bone from the cavity in which it articulates.

4. Traumatic dislocations of the hip, in the cases observed, were predominant in infants, which conflicts with general statistics.

5. In the cases under observation there were no nervous or vascular complications.

6. The reduction of the dislocation should be performed gently, with inverse leverage, but also, when it is possible, as in superficial joints, one should aid with propulsion the return of the dislocated head of the bone. Every reduction should be performed with the patient under anesthesia, so that complete muscle relaxation is obtained.

7. Unless muscle tone has been abolished by violent trauma, a second dislocation is rare; therefore, caution against prompt use of the joint is unnecessary. The patient should use the joint when the pain has completely disappeared. Immobilizing bandages are not necessary and prevent the restoration of the natural muscle tone, which is very useful for the functional articular restoration.

Congenital Cardiopathy and Surgical Interventions.—Prof. Vittorio Puddu, *director of the rheumatism and heart disease center* at the University of Rome, lectured to the Filippo Pacini Medical Academy of Pistoia on clinical diagnosis of congenital cardiopathy with regard to surgical indications. The application of surgery in congenital heart disease, said the speaker, has made necessary for the general practitioner a more thorough cognizance of these morbid entities from the anatomic, physiopathological, and diagnostic points of view with regard to indications for surgical intervention. Some congenital heart diseases, for example, stenosis of the aortic isthmus, aortic stenosis at its onset, persistence of the ductus arteriosus, and Roger's disease (localized ventricular septal defect), present a relatively easy clinical diagnosis, because characteristic symptomatic factors are present. In these instances it is also easy to determine in each case whether an indication for surgical intervention is present. In other instances, and especially in forms of cyanosis, a diagnosis is difficult and often requires the use of special laboratory investigations, for example, cardiac catheterization, angiography, and oximetry. In many cases, however, a good clinical examination, supported by other investigations, such as determination of circulation time and the roentgenologic examination, helps to formulate an exact diagnosis or at least to establish whether a surgical intervention is feasible. Working in this way the practitioner will be very useful to the patient, especially to the one who lives far from specialized medical centers.

Congenital Familial Icterus.—At a meeting of the Medicosurgical Society of Pisa, held under the chairmanship of Professor Cassano, Dr. Conti and Dr. Luciani described a rare form of chronic familial icterus, characterized by hepatosplenomegaly, hyperbilirubinemia, increase of the hemoglobic catabolism, and hypercholesteremia. The disease occurred in the parents and two sons. The symptomatic picture was more pronounced in the mother and the sons, while in the father signs of liver and spleen disturbances were not observed, and only a high amount of cholesterol was present in the blood. The essentially hemolytic nature of the icteric picture in these patients was confirmed by all the clinical and laboratory data. Hypercholesteremia, observed in all the members of the family, was characterized by a high index of esterification and was typically constitutional, familial, and hereditary; it was neither of exogenous origin nor linked with an eventual dyshepatia.

According to the speakers, in these patients the hemolytic diathesis was associated with hypercholesteremic diathesis. Usually a syndrome of excessive escape of hemoglobin is associated with low levels of cholesterol in the circulating blood.

SWEDEN

Claims for Legal Induction of Abortion.—Since the second quarter of 1948, there has been an official organization in Stockholm for giving advice on sex problems to the public. Serving on this body are a gynecologist, a psychiatrist, two full-time curators or social workers, and a secretarial staff. One of the curators, Karin Malmfors, has recently undertaken a personal follow-up investigation of 200 women who applied to this organization for the purpose of seeking legal induction of abortion. These women represented a fair sample of the applicants, as consecutive, unselected cases were studied, with the exception of women in whom abortion was induced for eugenic reasons, who were not included in this study. Seventy per cent of the women were married, 21% were unmarried, and 7% were divorced, and 2% were widows. The married women were much older than the unmarried women. Sixty were persuaded to allow the pregnancy to go to term; 97 had legal abortions (being carried out only in 84 cases); 31 were refused abortion; 7 aborted spontaneously; and 5 resorted to criminal abortion.

As a part of this study, Karin Malmfors visited the women in their homes and discussed their reactions in a friendly, informal way. Although there were 39 (32 married and 7 living alone) who expressed satisfaction with the induction of abortion, there were 45 who suffered from a sense of guilt or deterioration of mental status. In the latter group, there were 10 women with symptoms of such disturbances as anxiety neuroses. In 75% of the patients, housing problems played a predominant role in the wish for the induction of abortion. Another significant result of this study was the disclosure of the high proportion of cases in which official consent for abortion either was not put into practice or was followed by regret and guilt. In her office work and during her conversations with women in their own homes, Karin Malmfors was frequently impressed by the slight value attached to human life by both the community as a whole and the individual. Weighing decisively in the balance between life and death may be such apparently trifling factors as warm clothing or a few weeks' rest for a worn-out mother.

The items in these letters are contributed by regular correspondents in the various foreign countries.

Sketches and Caricatures of Scandinavian Physicians.—Several years ago, the conglomerate Scandinavian medical journal *Nordisk Medicin* entertained its readers with a series of caricatures of well-known physicians in the Scandinavian countries. Most of these sketches were the work of Dr. M. Strandqvist and Dr. G. Østerberg, whose victims must have experienced mixed feelings on seeing themselves as others see them. They were for the most part well-known leaders of the medical profession, men of mature years. Many of them have gone into retirement and have been succeeded by a new generation of teachers and professors, who must now stand the acid test of caricature. The editors of *Nordisk Medicin* proposes to begin their new portrait gallery in 1952 with a series of sketches to appear on the last page of each issue.

COLOMBIA

Repression of Prostitution.—In Colombia, except in Bogotá, prostitution has been tolerated under regulation. Prostitution was suppressed in Bogotá in 1949, when municipal law No. 95 was enforced. It was recently stated that suppression of prostitution in Bogotá has resulted in an increase in sexual delinquency. The Society of Cultural Improvement and Social Work requested the opinion of the members of the National Academy of Medicine, and for several weeks a scientific committee discussed the subject. The conclusions of the committee were approved by the members of the academy, and were then given, in answer, to the Society of Social Work by Drs. Jorge Bejarano and Jorge E. Cavelier who represented the academy. The following conclusions were reached.

1. The National Academy of Medicine considers the municipal law repressing prostitution in Bogotá worthy of respect and of approval. 2. The members of the academy discussed the economic, social, and moral violations that prostitution constitutes and voted that the government should pass laws to repress prostitution throughout the country. 3. By reviewing the municipal law that repressed prostitution in Bogotá and the different systems that have been used through the years in all countries for controlling and regulating prostitution, the members found that repression of prostitution is the only measure to use against this evil. Repression is based on principles of hygiene and on social and Christian doctrines. The statements recently made by some persons about the bad results of repression are false, as shown by data reviewed by the academy. Bad results, if any, could be attributed only to the manner in which the law is applied. 5. The members of the academy believe that the municipal law No. 95 should be enforced by the local health authorities. This measure will prevent violation of the law, which should remain in force. 6. The members of the academy are requesting from the Ministry of Hygiene the creation and appointment of a permanent committee on the subject. This committee could prepare a law for repression of prostitution in the entire country. The function of this permanent committee would be to explain the principles and aims of the law whenever doubts or criticisms are expressed to the members. The permanent committee could carry on campaigns for the education of the people on sex problems and for control of venereal diseases, and should discover the causes of and the remedies for prostitution. 7. The members of the National Academy of Medicine cordially invite the national scientific societies, the press, the clergy, and the newspaper syndicates to support and cooperate with the government for the success of the campaign against prostitution. 8. In regard to prostitution, it is a great error for a nation to retain old systems that are conflicting with sanitation and with morality. The morality and health of the people is a responsibility of the government. Tolerance and regulation of prostitution by the government result in masking this social vice for the unscrupulous.

Institute of Legal Medicine.—Aug. 24, 1951, marked the third anniversary of the opening of this institute, which is among the best in South America. Dr. G. Uribe Cualla, professor of legal medicine in the Javeriana and the national universities and author of many books on the subject is the director. The Institute of Legal Medicine was created by the government as a center for consultation and decision on all medicolegal affairs in the country. It was created to replace the old Central Office of Legal Medicine. According to the laws, this institute is the central unity of all the national departments of legal medicine having also control on judicial matters and functions in cooperating with the teaching of legal medicine in the faculties of medicine and of law of the University of Bogotá. The 15 national departments of legal medicine with their personnel are dependencies of the institute, which has the following functions: To solve all medicolegal problems for all the departments of the country and to serve as consultant for the supreme court of claims as well as for judicial matters in the courts of Cundinamarca. The scientific personnel and other workers are selected by examination in accordance with the regulations of the ministry of justice. The cornerstone for the Institute of Legal Medicine was placed on June 12, 1943. The institute was opened on Aug. 24, 1948, coincidently with the celebration of the first National Congress of Legal Medicine. The institute provides, at the request of the judicial authorities, assistance and arbitration, such as intervention in cases of personal lesion, autopsy in cases of sudden death without medical certification, judgment in sex delinquency, abortion, age calculations, traffic accidents, industrial accidents (cases of controversy), and psychiatric examination of persons for placement in national asylums for the insane. A total number of 317,819 negotiations on legal medicine have been carried on by the proper departments in the last 15 years. The institute includes the following facilities: amphitheater of legal medicine (about 1,000 necropsies a year), laboratory of toxicology (200 analyses a year), forensic laboratory (2,500 analyses a year), laboratory of radiology (613 roentgenograms a year), and laboratory of pathologic anatomy (300 protocol studies a year). *Revista de Medicina Legal* is the organ of the institute. Publication started in 1935, and 62 issues have thus far been published. It includes the work carried on by the national societies of psychopathology, neurology, and legal medicine. Dr. G. Uribe Cualla is the president of the Colombian Society of Legal Medicine.

Congress of Otorhinolaryngology and Ophthalmology.—The second National Congress of Otorhinolaryngology and Ophthalmology convened in Medellín Aug. 8-11, 1951, under the chairmanship of Dr. C. J. Vásquez C. of Bogotá. The Congress was held under the auspices of the Faculty of Medicine of Medellín and the Academy of Medicine of Antioquia. Official speakers were as follows: C. Uribe Aguirre ("Tensional Relations Between Humeral and Central Retinal Arteries"), J. Suárez Hoyos ("Tonsillectomy and Its Indications in Children"), F. Arango Jaramillo ("Commentaries on Strabismus"), M. Barrientos ("Commentaries on Petromastoid Emptying"), A. Llano ("Technic of Pterigium"), H. García Gómez ("Commentaries on Clinical Cases of Cataract"), J. Arciniegas ("Focal Infection"), C. Vásquez C. ("Cancer of the Mouth"), H. Londoño Vélez ("Tuberculinotherapy"), P. E. Mendoza ("Some Cases of Cyclodiathermy"), A. Posada ("Analysis of Some Cases of Retinal Detachment"), H. Arellano Angel ("Experimental Surgery on the Cornea in Animals"), A. P. Rodríguez Pérez ("Functional Significance of Amacrine Cells"), C. Vásquez C. and A. P. Rodríguez Pérez ("Experimental Cataract: Histologic Study"), C. Vásquez, S. Castaño, and A. P. Rodríguez Pérez ("Biomicroscopy and Histologic Texture of the Vitreum"), A. Estrada ("Goniotomy"), and A. Sanchez ("Sympathectomy in Optic Atrophy").

Deaths.—Dr. Julio Zuluaga, dean of the Faculty of Medicine of Caldas City, died from cancer of the lung, on Oct. 1, 1951, in Manizales City. He was born in Salamina, obtained his medical degree from the Faculty of Medicine of the University of Colombia, and carried on postgraduate studies, in surgery, in the United States and France. He was the founder of the Society of Medicine and Surgery of Manizales and of a private clinic in the same city. The Department of Roentgenology in his clinic was the first established in the city. He established the charity departments in the Caldas Hospital and the sanatorium for tuberculous patients in that city. He was a deputy in the House of Representatives and head of the Municipalities of the cities of Caldas and of Manizales.

CORRESPONDENCE

PITUITARY DWARFISM

To the Editor:—The report in The Journal of Nov. 17, 1951, by James A. Greene, entitled "Pituitary Dwarfism," presented conclusions which must be considered controversial in the light of our present knowledge of growth mechanisms and the role of the pituitary gland. The growth-promoting properties of a "pituitary extract" (origin, potency, and other pertinent factors unstated) used in these studies have never before been duplicated in humans to my knowledge. Results in the treatment of dwarfism secondary to hypopituitarism with pure crystalline somatotropin have been uniformly discouraging. Lewis, Klein, and Wilkins (*J. Clin. Invest.* **29**:460 [April] 1950) failed to obtain growth, weight gain, nitrogen retention, or rise in serum inorganic phosphorus in a dwarf (probably panhypopituitary) and in a cretin but did note malaise, fever, anorexia, and negative nitrogen balance. Escamilla and Bennett (*J. Clin. Endocrinol.* **11**:221 [Feb.] 1951) obtained similar results in a pituitary dwarf.

In Dr. Greene's report there was no mention of a control period of observation prior to therapy. The rate of spontaneous growth was therefore unknown. There was no record in the case protocols of the weight, nutritional status, or dietary background of the 10 patients. Talbot and his co-workers (*New England J. Med.* **236**:783 [May 22] 1947) studied a group of dwarfed children in whom subnormal caloric intake was the primary etiologic factor, and several of these children exhibited a growth spurt when well fed. The only criterion for the diagnosis of pituitary dwarfism offered here was subnormal height and retarded bone age. Talbot has clearly demonstrated retardation of skeletal maturation of a degree equal to panhypopituitarism in his "nutritional dwarfs." It would be informative for Dr. Greene to document his protocols with more detail in an addendum to further substantiate the conclusions arrived at in this interesting paper. Finally, both thyroid and testosterone, agents with growth-promoting properties, were often used simultaneously with the pituitary extract. On the basis of the evidence offered in Dr. Greene's paper, one must reserve judgment both as to the diagnosis of dwarfism of pituitary origin and to the growth-promoting properties of the pituitary extract used.

Norman G. Schneeberg, M.D.
1834 Pine St., Philadelphia 3.

SIMPLE COMEDONE EXTRACTOR

To the Editor:—In 1946, after my return to the civilian practice of dermatology from military service, it was found that patients encountered difficulty in purchasing comedone extractors; those that were obtainable were inferior. At that time I was tempted, because of the scarcity of metal and the poor quality of the comedone extractors, to submit for publication a note suggesting the use of a substitute implement that could be used by the patient. It was simple, readily available, inexpensive, efficient, and superior to many types of comedone extractors that are sold in drug stores. The suggestion was not submitted because it was anticipated that better extractors would be made available. Five years have now elapsed, during which time the type and quality of the comedone extractors on the market have not improved. It appears that the new limitations set on the use of metals will impose further restrictions in the manufacture of better quality implements.

Where it has been necessary to recommend the removal of comedones by patients at home, I have suggested the use of an ordinary glass eyedropper of the straight narrow-tip variety. The end of the tip however, must be smooth and not sharply cut off as some are. The tip is placed directly over the blackhead, the glass permitting easy visibility in centering the comedone within the lumen of the tip, and pressure is exerted in the usual manner. The patient can readily see the comedone enter the lumen of the eyedropper thereby determining the amount of pressure to be exerted. Should the tip become plugged with expressed comedones, it is an easy matter to remove them by blowing out the collection from the wide end of the eyedropper.

I have found this simple instrument highly satisfactory. In my experience, less trauma has resulted from the use of the eyedropper than from the use of the cheap extractors, many of which have a sharp metallic rim around the hole, which frequently results in laceration of the skin.

Harold Shellow, M.D.
8 S. Michigan Ave., Chicago.

THORACENTESIS

To the Editor:—With reference to the article in The Journal (**146**:1597 [Aug. 25] 1951) entitled "Practical System for Thoracentesis Using a Blood Donor Set," by Dr. Robert D. Beech, of Salt Lake City, and to the letter concerning this article from Dr. W. B. Bergmann (**147**:990 [Nov. 3] 1951), in which he also claims priority for the procedure; I first used a vacuum bottle for thoracentesis about 35 years ago and had supposed the method to be in more or less general use. I had at that time in my office a particularly good suction pump for cleaning pipets. When this pump was attached to a 4-qt. bottle, sufficient vacuum was obtained to aspirate 3 qt. of fluid. I claim no priority for this procedure, as it was being used by others at that time at the University Hospital in Ann Arbor.

Mark Marshall, M.D.
918 Forest Ave., Ann Arbor, Mich.

To the Editor:—In The Journal of Nov. 3, 1951, Dr. W. B. Bergmann raises the question of priority in the use of a vacuum flask for the aspiration of pleural effusions and refers to "Practical System for Thoracentesis Using a Blood Donor Set," by Robert D. Beech (*J. A. M. A.* **146**:1597 [Aug. 25] 1951). This method was described and illustrated by us in 1946 (Penetrating Wounds of the Chest, *Ann. Surg.* **123**:363 [March] 1946). It is possible that a similar method had been described earlier, as our paper was written in the European Theater and we had little opportunity to check the current literature.

John Burke, M.D.
Theodore T. Jacobs, M.D.
537 Delaware Ave., Buffalo 2.

ANILINE POISONING

To the Editor:—I noticed in The Journal of Sept. 8, 1951, page 198, an abstract of an article entitled "Methemoglobinemia Due to Aniline," from the *Medical Journal of Australia.* You state that "this seems to be the first case in which such poisoning was produced by the pure chemical." On Sept. 27, 1949, I sent you a paper entitled "Acute Aniline Poisoning," in which a white man, 37, working as a laborer in an industrial plant, was poisoned by pure aniline oil which had leaked from a drum on the floor. You did not feel that the report warranted acceptance. In addition, there were electrocardiograms that reverted to normal; I have not been able to find in the literature any such report.

Samuel M. Jacobson, M.D.
50 Pershing St., Cumberland, Md.

GENERAL PRACTICE RESIDENCY

To the Editor:—We should like to call your attention to an error in the Sept. 29, 1951, issue of The Journal. On page 411, under item 7, which lists the general residencies approved by the Council on Medical Education and Hospitals, you indicate that R. D. McConchie is the chief of the general practice section in our hospital.

While we do have an approved general practice residency, we do not have at the present time a general practice section of our attending medical staff.

Thomas L. Norton, Administrator
Wichita General Hospital
Wichita Falls, Texas.

MEDICAL MOTION PICTURES

Tele-Clinic No. 3: 16 mm., black and white, sound, showing time 39 minutes. Produced in 1951 by and procurable on loan from Wyeth, Incorporated, Film Library, 1600 Arch St., Philadelphia 3.

This motion picture is a newsreel type coverage of the Thirty-Second Annual Session of the American College of Physicians, St. Louis, 1951.

The film begins with a view of the auditorium, a welcome address by the general chairman, and a statement of the objectives of the college by Dr. William S. Middleton, president. Abstracts of the following five papers are read by the authors: "Radiation Injury Following an A-Bomb Explosion," Lt. Col. C. F. Vorder Bruegge, M.C., U.S.A., Armed Forces Institute of Pathology; "Current Concepts of the Coagulation Mechanism," Dr. Kenneth N. Brinkhous, University of North Carolina School of Medicine; "Prevention of Rheumatic Fever," Dr. Charles H. Rammelkamp Jr., Western Reserve University School of Medicine; and "Iron Metabolism and the Therapy of Iron Deficiency States," Dr. Carl V. Moore, Washington University School of Medicine, and "A Biblical Introduction to Geriatric Medicine," Dr. Louis Krause, University of Maryland School of Medicine. Sequences of portions of the convocation are then shown. These include formal induction of newly elected fellows; presentation of a mastership to Dr. Ernest Irons; Sir John Parkinson of England being made an honorary fellow; presentation of the James D. Bruce Memorial Award to Dr. Rolla Dyer and the Alfred Stengel Memorial Award to Dr. George Morris Piersol; convocation address by Sir John Parkinson; and closing of the meeting by President Middleton.

This film would be of primary interest to members of the American College of Physicians. The photography and narration are satisfactory.

Extraperitoneal Caesarean Section: A Simplified Paravesical Technic: 16 mm., color, sound, showing time 17 minutes. Prepared by A. R. Abarbanel, M.D., College of Medical Evangelists and Temple Hospital, Los Angeles. Produced in 1951 by and procurable on loan, rental, or purchase from Motion Picture Division, Department of Theater Arts, University of California, Los Angeles.

This film demonstrates the relative ease and safety with which extraperitoneal cesarean section may be performed. It stresses the avoidance of trauma to the bladder and of entrance into the peritoneal cavity. The author's statements as to the indications for relative ease and safety in performing extraperitoneal cesarean section are acceptable; however, some of the modifications of previously utilized technics are not entirely new, nor do they present operative advantages over standard accepted technics. A broad downward curved incision is used because it facilitates exposure with less scar formation than the Y-shaped incision. The use of the modified Z incision in the uterus is open to question. It is stated that skin clips are of advantage; this is largely a choice of the individual operator, as interrupted sutures afford equal advantages in cases that are considered to be or are potentially infected. This film should lend itself well for presentation to medical society groups and for intern and student teaching. It is recommended for the purpose for which it is presented and is well organized from a production point of view. The photography and narration are excellent.

The Diagnosis of Surgical Lesions of the Alimentary Tract: 16 mm., black and white, sound. Produced by the U. S. Army. Procurable on loan from the Army Surgeon of the Army Area in which the request originates.

Part 1, "The Primary Examination" (showing time 20 minutes [PMF 5177A] 1950), rightfully stresses the importance of the initial examination, which must be as complete and as thorough as possible. History-taking and physical examination, including sigmoidoscopy, are presented and evaluated. The simpler laboratory facilities which are available in any doctor's office, such as for blood cell counts, urinalyses, and guaiac tests, are emphasized. In this instance a lesion of the sigmoid was suspected. The endoscopic views of the mucous membrane of the rectum and sigmoid were rather noninformative, since they lack the very necessary element of color.

Part 2, "Special Technics and Apparatus" (showing time 21 minutes [PMF 5177B] 1951), carries this case further, demonstrating the utilization of more formidable diagnostic procedures, such as fluoroscopy, roentgenography, cytologic study, and biopsy. This section of the film also illustrates the essential study of a case of achalasia of the esophagus, and another case of carcinoma of the stomach. Here, too, the endoscopic views of the esophagus were in need of color.

In general, these films demonstrate excellent planning and presentation. They rightfully stress the important role which the general practitioner plays in the early recognition of these lesions. Part 1 is recommended for the instruction of medical students and residents and as a review for general practitioners. Part 2 is recommended for the instruction of residents and interns and as a review for general practitioners.

Thrombosis and Embolism: Part I. Pathogenesis and Clinical Manifestations: 16 mm., black and white, sound, showing time 18 minutes. Produced in 1948 by Norman P. Schenker, M.D., in cooperation with the Gynecological and Obstetrical Clinic, Cantonal Hospital, Geneva, H. de Watteville, M.D., and the Department for Medical Research, F. Hoffmann-La Roche & Co., R. Jurgens, M.D. Procurable on purchase ($60.00) from Medical Film Institute of the Association of American Medical Colleges, 2 East 103rd Street, New York 29.

This Swiss film reviews the clinical manifestations of postoperative thrombosis and embolism and considers in detail the physiopathological processes underlying the disorder. This is a highly interesting and stimulating effort to incorporate into one film a great deal of factual knowledge. The sound track, particularly in the first part of the film, is poor and is therefore disturbing. The spelling of the names of certain clotting factors may be foreign to the American audience (fibrinogine and thombine). There are certain obvious errors in the text, the most important one being a repeated statement that the embolus obstructs the bronchus of the lung.

Looking at it as a whole, this film is a notable attempt to summarize in a didactic manner factual knowledge about this disease. The clinical part of the film is unfortunately too short and represents the current teaching in Europe. One might object seriously to the omission of the muscle thrombus in the calf and its clinical detection. The visualization of thrombus formation under the microscope is an excellent illustration of the clotting phenomenon and in itself is a notable contribution. This does not represent the best up-to-date thinking on this problem in this country. It should be restricted to a group of research workers who are interested in this field but not released to the general medical audiences or to medical students.

The film is well organized and the photographic quality is good.

Subtotal Gastrectomy: 16 mm., color, sound, showing time 33 minutes. Prepared by John L. Madden, M.D., St. Clare's Hospital, New York. Produced in 1951 by and procurable on rental or purchase from Sturgis-Grant Productions, 314 East 46th Street, New York 17.

This film demonstrates a subtotal gastric resection utilizing a modification of the Reichel-Polya-Balfour type of procedure. The gastrojejunal anastomosis is accomplished by using a long loop placed antecolic with an isoperistaltic anastomosis. The patient is a 56-year-old white man with a diagnosis of chronic duodenal ulcer associated with partial obstruction. The legend describing the case history is projected on the screen at the time the commentator presents his running commentary. To read and to listen to different thoughts simultaneously is confusing; either one of these presented singly would have been preferable. The preoperative and postoperative roentgenograms were presented well.

The incision is outlined but not described. It would have been helpful had the limits of the mobilization of the greater curvature been stressed. Mention was made that vascular adhesions were being severed. However, these structures appeared to be branches of the usual pancreaticoduodenal artery, which are normally situated in this position. In mobilizing the lesser curvature it would have been far better and anatomically correct had the term "right gastric artery" been used rather than simply stating that the hepatoduodenal ligament is severed. The anastomosis was well done. The film presents good technique and an adequate resection for duodenal ulcer. It can be recommended for those interested in gastric surgery. Except for a few scenes that are slightly blurred, the photography is well done.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Charitable Hospitals: Liability for Negligence of Nurse's Aide.—The plaintiff sued for damages alleged to have been sustained as a result of the negligence of a nurse's aide employed by the defendant. From an order directing a verdict in favor of the defendant, the plaintiff appealed to the Supreme Court of Arizona.

In the early part of 1948, the plaintiff entered the defendant hospital for care and treatment of a torn sciatic nerve from which she was suffering. By February 29 of that year she had almost completely recovered and on that date was being conveyed from her room for a physiotherapy treatment. The physiotherapy department where the treatment was to be administered was located in a building forming a part of the hospital but some distance from the building in which the plaintiff's room was located. There was employed at the hospital at that time a nurse's aide, who was instructed on this particular day to convey the plaintiff upon a stretcher to the physiotherapy department for her treatment. Leading from the door of the building in which the plaintiff's room was located was a ramp down which the 4-wheel stretcher had to pass on its way to the other building. The nurse's aide sought to procure help to get the plaintiff down the ramp but, being unable to find assistance, undertook the task alone. She lost control of the stretcher on the ramp. It rolled around several times and finally turned over, throwing the plaintiff to the ground, causing severe fright and shock. The plaintiff claims that soon thereafter she began to suffer, and ever since has continued to suffer, great pain in her upper back, shoulders and neck. It is claimed that the accident and injury occurred as a result of the negligent handling of the stretcher by the nurse's aide, and that the defendant had failed to exercise due care in employing her as a nurse's aide.

We are definitely of the opinion that the question of whether or not defendant exercised due care in the employment of the rse's aide should have been submitted to the jury, said the preme Court. While it is true that there is no conflict in the idence as to what investigation the defendant made before nploying her, we are of the view that the evidence, taken as a whole, is of such a character as to cause reasonable men to reach entirely different conclusions as to whether defendant did or did not exercise due care in employing her. The counsel for the defendant, however, urged the court to reconsider the entire question of the liability of charitable institutions for torts committed by their employees.

The Supreme Court had previously declared it to be the law in this state that charitable institutions are not liable for the torts of a servant where due care had been exercised in her selection. These decisions were bottomed upon the ground of public policy. Realizing that public policy is, in its very nature, always fluctuating, varying with customs growing out of changing social, political and economic conditions and recognizing the radical changes that have taken place in each of these fields of activity during the past two decades, we believe, said the Supreme Court in the present case, it is not only proper but necessary that we reconsider the rule laid down in the prior case.

There are four reasons generally assigned for denying the liability of corporate charitable institutions for the torts of their employees:

1. The "trust fund" theory, i. e., that the funds and property of these institutions are held in trust and cannot be diverted to purposes other than that designated in the trust.

2. That the doctrine of "respondeat superior" cannot be extended so as to apply to charitable institutions because such institutions are not operated for profit.

3. The "implied waiver" theory, i. e., that when one enters a hospital for treatment he, by accepting the services rendered him, waives all right to claim damages for injuries suffered as a result of the negligence of the hospital or its employees. In other words he assumes the risk of negligence.

4. "Public policy," i. e., that to allow recovery would be against public policy.

When boiled down to its final analysis, said the Supreme Court, the rule of nonliability of these institutions as declared by all of the courts so holding, has been based upon the ground of "public policy," assigning as reasons therefor (1) that it wrongfully diverts trust funds from the purposes for which the trust was created and if permitted would stifle charity by discouraging donations for charitable purposes by those who are charitably minded (2) that it wrongfully extends the doctrine of "respondeat superior" to embrace corporations engaged in business not operated for profit or (3) that, by accepting the treatment received, the patient assumes the risk of negligence and impliedly agrees to waive liability on the part of the institution for torts committed by it or its employees. The Supreme Court then considered very thoroughly the arguments for and against each of the above theories upon which the doctrine of immunity has been based and reached the conclusion that the declaration of "public policy" is primarily a legislative function. The courts unquestionably have authority to declare a public policy which already exists, and to base its decisions upon that ground, but, before courts are justified in declaring its existence such public policy should be so thoroughly established as a state of public mind, so united and so definite and fixed, that its existence is not subject to any substantial doubt. It is equally true that, when the reason for the existence of a declared public policy no longer obtains, the courts should without hesitation declare that such public policy no longer exists. During the past two decades, the court continued, both the Federal Congress and the legislatures of practically all of the states have in various forms declared a public policy to exist in this country that is diametrically opposed to that invoked in the cases to sustain the immunity of charitable institutions from liability for damages for the torts of their servants. As examples practically every state has enacted a workmen's compensation law, occupational disease disability laws making employers liable to workmen if the injury or illness arises out of and in the course of their employment regardless of any question of negligence, employment security acts designed to take care of individuals during periods of enforced idleness, and even in cases of voluntary strikes under certain circumstances thus relieving the unfortunates of the burdens of misfortune and shifting such burdens to the shoulders of the public at large. In addition to these laws Federal legislation has encompassed the entire field of welfare and social security. We believe, the Supreme Court concluded, that these legislative declarations of public policy which relieve the individual of the burden of his misfortunes and make the general public bear the load, levying taxes directly or indirectly to carry out such policy, completely repudiate the rule of nonliability of charitable institutions for the torts of their servants based on public policy. For these reasons we are of the opinion that if public policy ever required that charitable institutions should be immune from liability for the torts of their servants, that public policy no longer exists. The Supreme Court therefore expressly overruled the holding in its prior case, and held that charitable institutions are liable for the torts of their servants from which injury proximately results to a third person, whether such person is a stranger or patient and whether the patient is a paying or nonpaying one.

Accordingly the judgment of the trial court directing a verdict in favor of the defendant was reversed and the cause was remanded for a new trial. *Ray et ux. v. Tucson Medical Center, 230 P. (2d) 220 (Arizona, 1951).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. Journal Diseases Child., Chicago

82:397-518 (Oct.) 1951

*Effect of Cortisone and Corticotropin (ACTH) on Acute Phase of Rheumatic Fever: Further Observations. A. R. Barnes, H. L. Smith, C. H. Slocumb and others.—p. 397.
Simple Procedure for Catheterizing Girls. H. F. Helmholz.—p. 426.
Perianal Dermatitis of the Newborn. A. G. Pratt.—p. 429.
Portable Humidifying Unit: II. Large-Capacity Metal Nebulizer. R. Denton and R. M. Smith.—p. 433.
Trichobezoar as Cause of Intestinal Obstruction in a Two-and-a-Half-Year-Old Child. S. Smoller, H. Schreiber and B. Scott.—p. 439.
Retrocaval Ureter: Report of Two Cases Diagnosed Preoperatively in Childhood. R. E. Parks and W. E. Chase.—p. 442.
Cystinosis (Cystine-Storage Disease): Report of Case with Chemical Isolation and Quantitative Determination of Cystine in Lymph Nodes, Spleen and Liver. F. P. King and E. P. Lochridge.—p. 446.
Situs Inversus with Levocardia. D. P. R. Keizer.—p. 456.
Selective Pancreatic Deficiency: Absent Amylase, Diminished Trypsin, and Normal Lipase. C. U. Lowe and C. D. May.—p. 459.
*Boric-Acid Poisoning: Report of Case and Review of Literature. C. Brooke and T. Boggs.—p. 465.

Cortisone and Corticotropin in Acute Rheumatic Fever.—Of 14 patients with acute rheumatic fever, 10 were treated with cortisone and 4 with corticotropin (ACTH). Cortisone was given for 22 to 55 days, with a total dose of from 1.175 gm. to 5.15 gm. Corticotropin was given for 16 to 38 days, with a total dose of from 410 to 825 mg. To be most effective cortisone or corticotropin should be given in adequate amounts early in the acute phase of the attack of rheumatic fever. Use of the drug in reduced amounts given continuously or in courses should be continued until the disease is inactive. Neither drug seemed to cure the disease or to shorten the usual duration of the acute rheumatic state. The acute manifestations of rheumatic fever were suppressed, but when administration of the drugs was discontinued exacerbations recurred until the disease had completed its usual course. Of 11 patients, 10 in their first attack of rheumatic fever and 1 in a recurrent attack of the disease, in whom evaluation of cardiac damage was attempted, 6 had no cardiac murmurs or evidence of cardiac enlargement when reexamined 1 to 10 months after their dismissal from the hospital. Two of these patients later had recurrent attacks of rheumatic fever, with reappearance of murmurs and cardiac enlargement. Five patients who received cortisone had clinical evidence of carditis before the drug was given. Cortisone exerted a definitely favorable effect on carditis in these patients. Observation of the 14 patients over a much longer period will be required to determine whether permanent cardiac injury has been sustained and to evaluate the extent of the injury when present. In one patient, organic valvular defects and cardiac hypertrophy resulting from previous attacks of rheumatic fever were not modified by administration of cortisone. Cortisone and corticotropin did not render patients immune to recurrence. Use of one or the other drug for the treatment of acute rheumatic fever should be supplemented by the most effective prophylactic measures to prevent the occurrence or recurrence of this disease. In only one patient was it necessary to discontinue the use of these drugs, and in that instance it was owing to the use of an unsatisfactory preparation of corticotropin.

Boric Acid Poisoning.—The occurrence of boric acid poisoning is reported in a girl, aged 9 months, with a diaper rash, whose father sprinkled powdered boric acid freely on the diapers and the skin lesions. Her buttocks became excoriated and extremely erythematous, respirations became rapid and shallow, a bright red confluent macular eruption of her face, head, neck, and extremities developed. She vomited coffee-ground material and passed bloody stools. Temperature rose to 104.9 F. The patient was alternately semicomatose and comatose, responding intermittently to painful stimuli. A specimen of urine obtained by catheter contained 1.6 mg. of boron per milliliter. Fluids and blood were given intravenously to combat the circulatory collapse and dehydration. Adrenal cortical extract was given because of the collapse and poor appearance of the infant. Penicillin and dihydrostreptomycin were administered because death had occurred from bronchopneumonia in some of the reported cases. The patient began having generalized twitching and sedation was used cautiously to control it. She died 26 hours after admission to the hospital. Necropsy revealed ulceration of the skin of the perineum, acute hemorrhagic enteritis, minimal ascites, cloudy swelling and central necrosis of the liver, and pulmonary congestion and edema. With the exception of the excoriation and desquamation of the epidermis and the hemorrhagic enteritis, the pathological findings could all be due to profound shock. Boron contents of urine and tissues were determined by spectrographic analysis; the amount of boron in brain, liver, kidney, heart, thymus, muscle, whole blood, and serum varied from 0.20 to 0.37 mg. per gram of tissue. Boric acid and sodium borate are sufficiently poisonous to cause severe symptoms and death when used in amounts commonly considered to be harmless. About 9 oz. (255 gm.) of powdered boric acid were used in this case. Boric acid is readily absorbed by different routes and is particularly insidious, in that symptoms may be minimal until a lethal or near lethal dose has been absorbed. The most characteristic findings are the gastrointestinal symptoms and the typical erythematous rash. In the more severely poisoned patient there is a shock-like picture and severe central nervous system involvement. The diagnosis may be further substantiated by the demonstration of boric acid in the urine. There is no known specific treatment for boric acid poisoning, and consequently treatment is symptomatic.

A.M.A. Arch. Pathology, Chicago

52:199-298 (Sept.) 1951

Study of Tumor Tissue After Transplantation: Histologic Changes Observed in Anterior-Chamber Transplants of Heterologous Tumor Tissue. A. Towbin.—p. 199.
Effect of Aureomycin on Transplanted Tumors. B. Sokoloff and W. H. Eddy.—p. 210.
Flavonoids in Experimental Cancers. B. Sokoloff, W. H. Eddy and J. B. Redd.—p. 215.
Calcified Lesions in C3H Mice Given Purified Low-Protein Diets; Tissues Involved: Heart, Skeletal Muscles, Arteries, and Lungs. B. Highman and F. S. Daft.—p. 221.
Selective Pancreatic Acinar Destruction by *dl*-Ethionine. R. C. Goldberg and I. L. Chaikoff.—p. 230.
The Human Aorta: IV. Aorta in Diabetes Mellitus. M. Faber and F. Lund.—p. 239.
Pathogenesis of Streptococcal Pneumonia in Rat. R. J. Glaser and W. B. Wood Jr.—p. 244.
Effect of Repeated Streptococcal Pulmonary Infections on Cardiovascular System in Rats. R. J. Glaser, G. J. Dammin and W. B. Wood Jr. —p. 253.
*Experimental Coronary Sclerosis: IV. Effect of Cortisone on End-Stage Coronary Sclerosis in Chickens. J. C. Paterson and C. A. Mitchell. —p. 260.
Hypertensive Cardiovascular Disease: Nature and Pathogenesis of Arteriolar Sclerosis Induced by Bilateral Nephrectomy as Revealed by Study of Its Tinctorial Characteristics. E. E. Muirhead, L. B. Turner and A. Grollman.—p. 266.

Cortisone in Experimental Sclerosis.—Of 40 relatively old chickens, 20 were given daily subcutaneous injections of cortisone acetate in doses of 4.5 mg. per kilogram of body weight for 14 days. The other 20 birds, the control group, were not given any treatment. On the 15th day after the first injection given to the treated birds, all 40 were killed by electricity. The incidence of coronary sclerosis was determined by counting the number of arteries with any degree of intimal proliferation and comparing this number with the total number of arteries examined. The

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An asterisk (*) before a title indicates that the article is abstracted.

severity of coronary sclerosis was assessed by grading and by actual measurement. There were almost twice as many foci of arterial disease in the control group (390 lesions in 1,484 cross sections of arteries, or 26%) as in the cortisone-treated group (191 lesions in 1,355 cross sections of arteries, or 14%). The size of naturally occurring fibrous plaques of the coronary arteries of the cortisone-treated birds was appreciably reduced. Thus, under the conditions of the experiment, an apparent fibrolytic effect of cortisone was achieved. There is very little similarity between end-stage coronary sclerosis of chickens and coronary atherosclerosis of man. There is, therefore, no indication from this experiment that cortisone might be efficacious in the treatment of human coronary artery disease. However, there are human diseases, such as endarteritis obliterans, rheumatic and syphilitic arteritis, periarteritis nodosa, and diffuse pulmonary vascular sclerosis, that are accompanied by cellular and fibrous proliferation of the intimal coat of arteries. Attempts to influence the course of the stenosing arterial lesions in these diseases by cortisone therapy would be justified.

American Journal of Clinical Pathology, Baltimore

21:701-798 (Aug.) 1951. **Partial Index**

Differential Diagnosis of Hyperglycemic States by Laboratory Methods. G. J. Hamwi and E. von Haam.—p. 701.
Decalcification of Bone in Relation to Staining and Phosphatase Technics. R. D. Lillie, A. Laskey, J. Greco and others.—p. 711.
Protective Action of Chlorophyll on Hepatic Necrosis in Rats. J. F. McCloskey and E. H. McGehee.—p. 723.
Blood Media for Determination of Sensitivity of Mycobacterium Tuberculosis to Streptomycin. M. S. Tarshis and A. W. Frisch.—p. 729.
Laboratory Diagnostic Tests for Cancer: Panel Discussion. W. O. Russell, R. L. Clark Jr., J. E. Dunn and others.—p. 764.
Clinical Significance of Increased Rouleau Formation in Smears of Peripheral Blood. E. D. Bayrd.—p. 777.
Blood Culture: Clinical Laboratory Study of Two Methods. V. Conner and O. T. Mallery Jr.—p. 785.
Single Medium for Detecting Urease and Indol. F. Rappaport and E. Henig.—p. 789.

American Journal of Public Health, New York

41:1047-1208 (Sept.) 1951. **Partial Index**

Geographic Variations of Dental Caries in Oregon: V. Dental Caries Among School Children in the Willamette Valley Region. D. M. Hadjimarkos and C. A. Storvick.—p. 1052.
*Longevity and Behavior of Pathogenic Bacteria in Frozen Foods: Influence of Plating Media. S. E. Hartsell.—p. 1072.
In Vitro and in Vivo Tests with Newer Antibiotics Against Endamoeba Histolytica. O. Felsenfeld, E. R. Kadison and S. J. Ishihara.—p. 1078.
Putting Absence Records to Use. W. G. Hazard.—p. 1087.
Vocational Rehabilitation and Public Health. H. Notkin.—p. 1096.
Integrating Public Health and Commercial Rodent Control. H. L. Fellton.—p. 1101.
Public Health Benefits from Disposal of Garbage in Sewers. B. A. Poole and G. K. Erganian.—p. 1106.
The UAW-CIO and Problem of Medical Care. H. Becker.—p. 1112.
A Community Surveys Its Home Accidents. H. L. Roberts.—p. 1118.

Pathogens in Frozen Foods.—This paper stresses the need for development of methods for finding pathogens in frozen foods. The survival and behavior of certain pathogens in frozen beef and peas were studied, and the effectiveness of certain culture media in recovering viable cells was determined. The data presented showed that certain pathogens when frozen in beef or in peas will survive for many months at —9 C and —17.8 C. The metabolic requirements of the cells apparently are markedly altered, since a highly nutritive medium, YE-VI agar (yeast extract-veal infusion), will recover much larger numbers than the selective media, such as MacConkey agar, desoxycholate agar, or violet red bile agar. The number of bacteria recovered on these selective media from successive samples of frozen food decreases as storage is continued at subfreezing temperatures. Apparently the freezing process, as well as the heating process, alters the nutritional requirements of bacteria—at least, more viable cells can be detected if they are given a booster dose of needed metabolites. YE-VI agar accomplished this purpose very well. Without such a medium the pathogen may not be detected, and false confidence regarding its significance in a food may result. The longevity of the pathogens, especially in the frozen beef, is significant in this connection.

Annals of Surgery, Philadelphia

134:289-528 (Sept.) *1951*

Medical Education in the Present Emergency. S. C. Harvey.—p. 289.
Physiologic Operation for Mega-Esophagus: (Dystonia, Cardiospasm, Achalasia). O. H. Wangensteen.—p. 301.
*Effect of Various Surgical Procedures upon Acidity of Gastric Contents of Ulcer Patients. D. A. Farmer, C. W. Howe, W. J. Porell and R. H. Smithwick.—p. 319.
*Experimental Hyperfunction of Gastric Antrum with Ulcer Formation. L. R. Dragstedt, H. A. Oberhelman Jr. and C. A. Smith.—p. 332.
Operative Cholangiography: Evaluation of 406 Cases. C. G. Mixter, L. Hermanson and A. L. Segel.—p. 346.
*Subtotal Adrenalectomy in Treatment of Patients with Severe Essential Hypertension. H. A. Zintel, C. C. Wolferth, W. A. Jeffers and others.—p. 351.
Traumatic Asphyxia: Experimental and Clinical Observations with Report of Case with Concomitant Paraplegia. F. L. Reichert and J. W. Martin.—p. 361.
Regional Swelling of Brain in Subdural Hematoma. J. Browder and A. M. Rabiner.—p. 369.
Thrombosis of Dural Venous Sinuses as Cause of "Pseudotumor Cerebri." B. S. Ray and H. S. Dunbar.—p. 376.
Evaluation of Radioactive Mapping Technic in Surgery of Brain Tumors. B. Selverstone and J. C. White.—p. 387.
Total Resection of Temporal Bone for Malignancy of Middle Ear. E. Campbell, B. M. Volk and C. W. Burklund.—p. 397.
Thrombo-Embolism: Analysis of Cases at the Charity Hospital in New Orleans Over 12-Year Period. A. Ochsner, M. E. DeBakey, P. T. DeCamp and E. da Rocha.—p. 405.
Surgical Management of Post-Splenectomy Bleeder with Extra-Hepatic Portal Hypertension. A. H. Blakemore and H. F. Fitzpatrick.—p. 420.
Selection of Patients for Portacaval Shunts: With Summary of Results in 61 Cases. R. R. Linton.—p. 433.
Congenital Arteriovenous Aneurysm of Right External Carotid Artery and Posterior Facial Vein with Absence of Branches of External Carotid Artery: New Method of Obliterating Inaccessible Venous Sac and Fistula. M. Gage.—p. 444.
Diagnosis and Management of Tumors of Adrenal Gland. K. S. Grimson, J. R. Emlet and E. C. Hamblen.—p. 451.
Subtotal Adrenalectomy for Cushing's Syndrome: Preliminary Report of 29 Cases. J. T. Priestly, R. G. Sprague, W. Walters and R. M. Salassa.—p. 464.
Fallacy of Current Surgical Fad—Three-Minute Preoperative Scrub with Hexachlorophene Soap. P. B. Price.—p. 476.
Permanent Pedicle Blood-Carrying Flaps for Repairing Defects in Avascular Areas. J. B. Brown, M. P. Fryer and F. McDowell.—p. 486.
Effect of ACTH and Cortisone on Survival of Homologous Skin Grafts. E. H. Ellison, B. C. Martin, R. D. Williams and others.—p. 495.
Adrenal Cortical Hormones and Homografting: Exploration of Concept. P. A. Weisman, W. C. Quinby Jr., A. Wight and B. Cannon.—p. 506.
Can Resistance to Cancer be Induced? H. B. Stone, R. M. Curtis and J. H. Brewer.—p. 519.

Effect of Surgical Procedures on Gastric Acidity of Ulcer Patients.—To determine the effect of surgery on the gastric acidity of ulcer patients, tests were made on 10 normal persons, 41 patients with duodenal ulcer, and 12 patients with gastrojejunal ulceration following a variety of operations. The quantity of acid in the gastric contents of duodenal ulcer patients was found to be greater than in normal persons following stimulation by insulin, beef broth, and histamine. The hydrogen ion concentration in the gastric contents was also greater in duodenal ulcer patients than in normal persons, particularly under fasting conditions. Patients who had gastrojejunal ulcers following various operations for duodenal ulcer had an acidity similar to that of persons with untreated duodenal ulcers. Resection of 50% of the stomach combined with vagotomy resulted in reduction in both the quantity of free acid and the hydrogen ion concentration in the gastric contents. The effect of this combined procedure and of subtotal resection alone on both quantity of free acid and hydrogen ion concentration was more marked than that following vagotomy plus posterior gastroenterostomy. When gastric resection was combined with vagotomy, removal of more than one-half of the stomach appeared to be no more effective than removal of approximately half the stomach, but removal of an estimated one-third of the stomach was considerably less effective. The results of removal of 50% of the stomach combined with vagotomy seem superior to those of more radical resections with or without vagotomy. If vagotomy combined with posterior gastroenterostomy gives adequate protection against the ulcer diathesis it is probably not because of the effect on gastric acidity alone. The acidity following this procedure is frequently within the range found in patients in whom gastrojejunal ulcers have developed. The greatest drawback to procedures involving resection of the vagus nerves is the hazard that the denervation may not be complete. Also, the possibility of regeneration of the vagus nerves has not yet been excluded.

Gastric Antrum and Ulcer Formation.—Experiments on dogs revealed that transplantation of the antrum of the stomach into the side of the transverse colon greatly increased gastric secretion. This is due to the excessive or long-continued production of a humoral agent, gastrin, since it occurs if all of the nervous connections between the antrum and the stomach have been divided. When the antrum of the stomach was transplanted into the colon and the intestinal continuity was reconstructed by gastrojejunostomy, large stoma ulcers developed in 80% of the animals. Transplantation of the antrum of the stomach into the colon with reestablishment of intestinal continuity by gastroduodenostomy resulted in the formation of stoma ulcers in 20% of the animals. When the entire stomach was isolated from the intestinal tract and its vagus innervation interrupted, a meager secretion of gastric juice was produced, and animals were kept for many months, or indefinitely, without the production of ulcers in the isolated stomach. When the antrum was removed from the isolated stomach, however, and transplanted into the colon as a diverticulum, gastric secretion was greatly increased, and ulcers regularly developed in the isolated stomach, progressed, caused hemorrhage, or perforated, in a relatively short time. Although a hypersecretion of gastric juice of antrum origin results in ulcer formation in animals, evidence is not yet available to indicate that the hypersecretion of gastric juice characteristically found in duodenal ulcer patients is due to hyperfunction of the antrum, although this possibility should be kept in mind. The development of gastric and stoma ulcers in dogs when the antrum of the stomach is transplanted into the colon provides a new method for the production of ulcers that resemble clinical lesions and the opportunity to evaluate various prophylactic and therapeutic measures. The relatively few stoma ulcers that appeared following gastroduodenostomy as compared with the high incidence and large size of the stoma ulcers that appeared following gastrojejunostomy would seem to indicate a much greater resistance of the duodenal as compared with the jejunal mucosa and suggest that gastroduodenostomy may be preferable to gastrojejunostomy as a drainage operation.

Subtotal Adrenalectomy in Hypertension.—Hypofunction of the adrenals (Addison's disease) is associated with hypotension, whereas certain types of hyperfunction of the adrenal gland, e. g., Cushing's syndrome and pheochromocytoma, are associated with hypertension. These facts and the unsatisfactory results of sympathectomy in hypertension induced Zintel and associates to try subtotal adrenalectomy. Their procedure is original only in regard to the amount of adrenal tissue removed. In 1949 they began to remove one adrenal gland completely at the time of the second stage thoracolumbar sympathectomy in patients with severe essential hypertension, but unilateral adrenalectomy produced no changes when the remaining adrenal was functioning. In 1 of the 16 patients who had unilateral sympathectomy and adrenalectomy, 90% of the remaining adrenal was subsequently removed, after which the blood pressure became normal. They removed from 88 to 98% of the adrenal in 26 patients with severe essential hypertension. In 11 of these, removal of the adrenal tissue was in addition to a thoracolumbar, supradiaphragmatic, or subdiaphragmatic sympathectomy. In 13, up to 98% of the adrenals was removed but no sympathectomy was done, and in 2 patients complete adrenalectomy was performed. Results were evaluated in 11 patients, who were observed for more than four months; three of these patients died. In the eight living patients the average blood pressure before adrenalectomy was 228/142; from 4 to 12 months after adrenalectomy it was 167/108. All of the eight improved in one or more of the following symptoms: headache, nausea, vomiting, dyspnea, decreased vision, and weakness. All were able to return to part-time or full-time activity, whereas they were incapacitated before adrenalectomy. In six of the eight patients slight to moderate increase in pigmentation of the skin has developed; two require adrenal replacement therapy at present. The possibility that subtotal adrenalectomy may find its greatest usefulness as an adjunct [illegible] or extensive sympathectomy and splanchnicectomy [illegible] being studied.

Annals of Western Medicine & Surgery, Los Angeles

5:755-810 (Sept.) 1951

*Chronic Amebiasis: Common Disease. R. G. Lehman and L. R. Thompson.—p. 755.
Desmoid Tumors of Abdominal Wall. J. Gaster and B. Gregorius. —p. 759.
Procaine Hydrochloride Blood Mixture for Treatment of Hemorrhage During Surgical Anesthesia. F. G. Jensen.—p. 765.
Hemostatic Effects of Powdered Gelfoam® Thrombin Solution and Blood Transfusions in Instance of Recurring Massive Hemorrhage from Large Chronic Gastric Ulcer: Report of Case. D. C. Collins, W. F. Clark and S. P. Dimitroff.—p. 767.
*Poliomyelitis Following Tonsillectomy: Report of Six Cases. L. S. Goerke and A. G. Bower.—p. 770.
Diagnosis and Differential Diagnosis of Rheumatic Fever. G. C. Griffith and J. A. Sheinkopf.—p. 773.
Delayed Cardiac Arrhythmias Following Pneumonectomy. E. Phillips. —p. 778.
Postoperative Management of Patients Who Have Undergone Bilateral Ureterosigmoidostomies. J. Kaplan.—p. 782.
Carcinoma of Vulva. E. A. Pearson.—p. 785.

Chronic Amebiasis.—The occurrence of chronic amebiasis is reported in 238 private patients in San Pedro, Calif., from March, 1947, to December, 1950. Parasitism due to Endameba histolytica is one of the commonest chronic diseases in the United States. Of the 238 patients, 60 had symptoms pointing to a pathological process in the right iliac region, although their complaints were actually caused by E. histolytica. Differentiation of chronic amebiasis from acute appendicitis thus is important and difficult; generalized abdominal cramps, anorexia, vomiting, fever, and leukocytosis are more suggestive of acute appendicitis than of amebiasis, while pain in the lower right part of the abdomen, accompanied by mild to moderate tenderness and unassociated with other symptoms, may be frequently due to chronic amebiasis. Abdominal pain caused by amebiasis may simulate numerous other conditions besides appendicitis, such as cholelithiasis, irritable colon, or peptic ulcer. Neuromuscular symptoms, such as myalgia and leg pain, drowsiness, poor memory, exhaustion, and easy fatigability, often suggest the diagnosis of psychoneurosis. Circulatory symptoms were not outstanding in the authors' patients. Only constant vigilance of the physician coupled with an awareness of the various clinical conditions simulated by amebiasis will suggest the presence of the disease. The diagnosis of amebiasis is a laboratory procedure. Examination of the feces is part of any thorough physical examination and is possibly as important as routine blood or urine examinations.

Poliomyelitis Following Tonsillectomy.—In Los Angeles, in the summer of 1950, poliomyelitis followed tonsillectomy within 15 days in six children between the ages of 4 and 9 years. Of the six patients, five had bulbar involvement and two died. Of 6,040 cases of poliomyelitis occurring in California during 1948 and 1949, 30 followed tonsillectomy or adenoidectomy within two months, and 16 (53.3%) of the 30 patients had bulbar involvement. Evidence thus points to a risk of bulbar involvement significantly higher following tonsillectomy and adenoidectomy than in cases not following these surgical interventions, thus supporting the policy of deferment of elective tonsillectomy and adenoidectomy during increased incidence of poliomyelitis.

Bull. School Med. Univ. Maryland, Baltimore

36:103-142 (July) 1951

Diagnosis and Treatment of Acute Abdomen. L. K. Ferguson.—p. 103.
Penicillin in Bronchial Asthma. H. M. Bubert.—p. 115.
New Type Pull-Out Wire for Tendon Surgery: Preliminary Report. A. R. Mansberger Jr., E. R. Jennings, E. P. Smith Jr. and G. H. Yeager. —p. 119.
Torulosis of Central Nervous System: Biochemical Behavior of Causative Organism. W. H. Mosberg Jr. and J. D. McAlpine.—p. 122.
*Gout—Recent Advances. E. S. McCabe.—p. 126.

Gout: Recent Advances.—According to McCabe, gout seems to be the result of an inborn defect of metabolism, which at some time or other manifests itself as hyperuricemia and/or gouty arthritis. Hyperuricemia is found in the blood of a large percentage of relatives of gout patients. Some investigators concluded that hyperuricemia results from a single autosomal dominant gene and that only a small percentage of the heterozygous persons manifest gouty arthritis, whereas homozygous persons are prone to have tophaceous gout as well. The changes that occur in the uric acid metabolism and the resultant symptoms can apparently be accounted for by the outpouring of steroid hormones during the alarm reaction precipitated by emotion, infection, surgical procedures, physical exertion, allergy, alcohol, dietary indiscretion, and drugs, e. g., liver extract. An allergic factor may be the synergist that magnifies small changes in the desoxycorticosterone-11 oxysteroid ratio. The first attack (stage 1) of acute gouty arthritis usually occurs suddenly, lasts about 3 to 10 days, and then disappears completely. It affects the great toe or the instep, ankle, knee, or other region. The disease usually increases in tempo and severity, attacks coming on semiannually or oftener. Later attacks (stage 2) are prone to be polyarticular and febrile. With the polyarticular stage, subcutaneous tophi and involvement of bursae are common. Osseous tophi may be found in chronic gouty arthritis. The mental aspects of the disease are frequently seen in phase 3, when the patient's memory is impaired; the speech becomes thick or slurred, and the patient may become irritable. The early monarticular attack may be aborted by a saline cathartic and colchicine. This may be followed by sodium salicylate or cinchophen for a few days to combat hyperuricemia. At times morphine may be necessary to relieve the pain. The diet should be low in purines and fats and high in carbohydrates. Alcohol should be avoided. In chronic gouty arthritis fever therapy may be required. If tophaceous ulcers occur, débridement usually results in prompt healing. In gouty nephritis, a low protein diet and a more generous fluid intake are demanded. Corticotropin has been shown to influence uric acid excretion. It hastens the control of the acute attack, but it can also precipitate an attack if given in a period of remission. Final evaluation of this hormone requires a more intensive trial. Cortisone does not appear to be of as much value.

Electroencephalography and Clin. Neurophys., Boston

3:261-392 (Aug.) 1951. Partial Index

Changes in EEG Under Barbiturate Anaesthesia Produced by Electro-Convulsive Treatment and Their Significance for Theory of ECT Action. M. Roth.—p. 261.
Electrocorticography in Psychomotor Epilepsy. J. R. Green, R. E. H. Duisberg and W. B. McGrath.—p. 293.
Electroencephalogram in ACTH and Cortisone Treated Patients. I. Pine, F. L. Engel and T. B. Schwartz.—p. 301.
Effect of Cortisone on Electroencephalogram. W. J. Friedlander and E. Rottger.—p. 311.
Slow Voltage Variation of Cortical Spreading Depression of Activity. A. A. P. Leão.—p. 315.
Electroencephalographic Changes Associated with Experimental Temporary Focal Cerebral Anemia. J. Harvey and T. Rasmussen.—p. 341.
A Case in Which Visual Hallucinations Related to Past Experience Were Evoked by Photic Stimulation. A. C. Mundy-Castle.—p. 353.
Electrophrenic Controlled Hyperventilation for EEG Activation. J. Romero and C. Marshall.—p. 357.

Endocrinology, Springfield, Ill.

49:1-148 (July) 1951. Partial Index

Lipid Distribution in Sertoli Cell and Leydig Cell of Rat Testis as Related to Experimental Alterations of Pituitary-Gonad System. K. M. Lynch Jr. and W. W. Scott.—p. 8.
Comparison of Exophthalmos and Tissue Changes Induced by Active and Inactivated Thyrotropic Hormone. B. M. Dobyns and R. W. Rawson. —p. 15.
Effect of Excess Iodide upon Anterior Pituitary Cytology of Completely Thyroidectomized Rat and Its Bearings on Question of Extrathyroidal Thyroxine Synthesis. R. F. Hum, R. C. Goldberg and I. L. Chaikoff. —p. 21.
Cytochemical Changes in Adrenal Cortex of Rat in Pyridoxine Deficiency. R. B. Stebbins.—p. 25.
Neuro-Endocrine and Endocrine Influences on Circulating Blood Elements. E. Simms, M. Pfeiffenberger and P. Heinbecker.—p. 45.
Influence of Pancreatectomy on Metabolic State of Alloxan-Diabetic Dog. I. A. Mirsky, P. Futterman, J. Wachman and G. Perisutti.—p. 73.
Gastric Secretion in Adrenalectomized Rat. R. J. Madden and H. H. Ramsburg.—p. 82.
Effect of Hypophysial Stalk Section on Adenohypophysial Function. Pei Chin Tang and H. D. Patton.—p. 86.
Effect of Purified Growth Hormone on Urea Formation in Nephrectomized Rats. J. A. Russell.—p. 99.
Histochemical Demonstration of Ketosteroids in Virilizing Tumors of Adrenal Cortex. A. M. Seligman and R. Ashbel.—p. 110.
Observations on Interrelationship Between Insulin, Adrenal Cortex and Non-Specific Stress (Cold) in Adipose Tissue Glycogen Synthesis in Rat. F. L. Engel.—p. 127.
Observations on Relation of Renal Function Changes to Electrolyte and Glycosuric Effects of ACTH in Man. J. D. Alexander, E. D. Pellegrino, S. J. Farber and D. P. Earle.—p. 136.

Industrial Medicine and Surgery, Chicago

20:385-430 (Sept.) 1951. Partial Index

New Developments in Industrial Surgery. H. E. Mock Jr.—p. 385.
Appraisal of Urinary Porphyrin Test in Detection of Lead Absorption. A. L. Brooks.—p. 390.
Occupational Cancer and Other Health Hazards in Chromate Plant: Medical Appraisal: II. Clinical and Toxicologic Aspects. T. F. Mancuso.—p. 393.
Pharmacologic Action and Acute Toxicity of Glucuronic Acid Lactone. W. B. Deichmann and B. Hopfenspirger.—p. 417.
*Fractures of Metatarsals and Tarsals. R. J. Bennett.—p. 423.

Fractures of Metatarsals and Tarsals.—The 631 patients reviewed in this paper had 842 metatarsal and 62 tarsal fractures, a total of 904 fractures. The first metatarsal was the most frequently fractured metatarsal, and the navicular was the most frequently fractured tarsal bone. It is interesting that about half of the metatarsal fractures (422 of 842) and exactly half of the tarsal fractures (31 of 62) involved single bones. Prompt reduction is the most important step in treatment of fractures of the tarsals and metatarsals. Where the fracture is displaced or compound, an anesthetic is indicated. Adequate fixation is imperative. In only a few instances was open reduction necessary and in only a few cases was the interposition of tissues found. The oblique fractures of a metatarsal were most difficult to control during healing. These were most satisfactorily held by means of a stainless steel pin and a rubber band extension placed through the distal phalanx of the toe. In most simple fractures, union was affected in from four to eight weeks, except in cases in which there were complications such as burns and crushed tissues, and in a few cases in which the patient did not fully follow instructions. In a few cases there was decalcification of the fractured bones. Arteriosclerosis, as evidenced by a pipestem posterior tibial artery, seemed to slow the healing process but did not stop it. Depending upon the amount of callus present, weight-bearing was allowed in an average of 8 to 12 weeks. In cases in which there was a delay or failure to restore normal alignment temporary or permanent disability resulted. Both the frequency and severity of fractures of the bones of the feet are less than they were 10 years ago, owing to intensive safety programs and protective devices for the feet.

International Journal of Leprosy, New Orleans

19:117-264 (April-June) 1951. Partial Index

Field Study of Leprosy in Cordova, Philippines: Resurvey in 1941 After Eight Years. R. S. Guinto, J. A. Doull, H. Bancroft and J. N. Rodriguez.—p. 117.
*Effects of Adrenocorticotropic Hormone (ACTH) in Lepromatous Lepra Reaction. M. Roche, J. Convit, J. A. Medina and E. Blomenfeld. —p. 137.
Action of the Monosubstituted Succinyldiamino-diphenyl Sulfone in Leprosy. H. Floch and P. Destombes.—p. 147.
Blood and Urine Concentrations of Free and Hydrolyzed Sulfones in Leprosy Patients Under Treatment. Sister Hilary Ross and F. Gemar. —p. 153.
Lepromin Test in Contacts, with Particular Reference to Positive Bacteriological Findings. N. Figueredo and S. D. Desai.—p. 165.
Cultivation and Morphological Study of Pleomorphic Organism from Blood of Leprosy Patients. E. Alexander-Jackson.—p. 173.
Modification of Technique of Ziehl-Neelsen for Bacilloscopy in Leprosy Patients Treated with Sulfones. F. F. Wilkinson.—p. 195.

Corticotropin in Lepra Reaction.—Lepra reaction is a troublesome incident in the chronic, drawn-out course of lepromatous leprosy. There has been no way of controlling satisfactorily the characteristic fever, malaise, joint and muscle aches, and cutaneous lesions that periodically beset many of these patients. Since corticotropin has produced symptomatic benefit in conditions regarded as "allergic," its trial in the lepra reaction appeared logical. Six patients with lepromatous leprosy undergoing lepra reaction were given corticotropin in doses of 40 to 80 mg. a day for a maximum of seven days. A rapid regression of the reaction symptoms occurred in all cases, and in most of them the temperature fell to normal within 24 hours. Iridocyclitis in one patient and peripheral neuritis in two others were rapidly improved, but most of the symptoms returned a few days after cessation of treatment. It is felt that through the rapid control of the reaction symptoms, corticotropin may contribute to the treatment of leprosy, particularly in the cases in which the reaction is an obstacle to the continued administration of a chemotherapeutic agent.

Journal of Investigative Dermatology, Baltimore

17:125-176 (Sept.) 1951

Use of Silicote® as Skin Protectant. J. R. Talbot, J. K. MacGregor and F. W. Crowe.—p. 125.

Use of Gastric Mucin in Experimental Infections with Dermal Viruses. M. J. Lipnik and G. D. Baldridge.—p. 127.

Rapid and Simple Method for Obtaining Punch Biopsies Without Anesthesia. F. Urbach and W. B. Shelley.—p. 131.

Hereditary Leuconychia Totalis. W. T. Kruse, E. P. Cawley and C. W. Cotterman.—p. 135.

Occurrence of Contact Dermatitis from Oil Soluble Gasoline Dyes. J. H. Lamb and E. S. Lain.—p. 141.

Distribution of Glycogen and Lipids in Human Skin. W. Montagna, H. B. Chase and J. B. Hamilton.—p. 147.

Aluminum Penicillin Administered Orally: Comparison with Sodium Penicillin. W. P. Boger and J. O. Beatty.—p. 159.

Influence of Antihistamines on Skin Tests with Bacterial and Fungous Antigens. S. Epstein.—p. 165.

Observations on Treatment Mechanisms in Psoriasis with Special Reference to Terramycin. J. H. Stokes and W. T. Ford.—p. 171.

Journal Lab. and Clinical Medicine, St. Louis

38:331-496 (Sept.) 1951

Role of Infection in Radiation Injury. C. P. Miller, C. W. Hammond and M. Tompkins.—p. 331.

*ACTH in Experimental Poliomyelitis in Monkeys and Mice. J. D. Ainslie, T. Francis Jr. and G. C. Brown.—p. 344.

Influence of ACTH on Resistance of Monkeys to Yale SK Strain of Poliomyelitis Virus. C. Foster, M. M. Sigel, W. Henle and J. Stokes Jr. —p. 359.

Effect of Cortisone in Streptococcal Lymphadenitis and Pneumonia. R. J. Glaser, J. W. Berry, L. H. Loeb and W. B. Wood Jr.—p. 363.

Chronic Melioidosis: Bacteriologic and Clinical Correlation in Diagnosis. M. W. Garry and M. L. Koch.—p. 374.

Comparative in Vitro Study of Guinea Pig Brain Oxidations as Influenced by Xenon and Nitrous Oxide. C. B. Pittinger, R. M. Featherstone, S. C. Cullen and E. G. Gross.—p. 384.

Influence of Oxygen and Carbon Dioxide Levels During Anesthesia upon Postsurgical Hepatic Damage. J. L. Sims, L. E. Morris, O. S. Orth and R. M. Waters.—p. 388.

D-Tubocurarine Chloride Concentrations in Human Plasma After Intravenous Injection During Anesthesia. C. B. Pittinger, L. E. Morris and S. C. Cullen.—p. 397.

Influence of Heat upon RH, Lewis, and H. Agglutinogens. E. V. Hulse. —p. 402.

Electrophoretic Studies on Serum and Urine Proteins in Nephrosis Treated with ACTH. E. B. Farnsworth and N. C. Ruppenthal.—p. 407.

Serum Lipid Analysis in Nephrotic Syndrome Under ACTH Administration. J. W. Soshea and E. B. Farnsworth.—p. 414.

Observations on Absorption, Distribution, and Excretion of Elkosin (N'-[2,6-Dimethyl-4-Pyrimidyl]-sulfanilamide) in Man. J. A. Prior and S. Saslaw.—p. 420.

Human Serum Tributyrinase: II. Levels in Tuberculosis. J. Tuba and R. Hoare.—p. 428.

Detection of Occult Blood in Feces Including Observations on Ingestion of Iron and Whole Blood. A. Peranio and M. Bruger.—p. 433.

Normal and Abnormal Variations and Clinical Significance of One-Minute and Total Serum Bilirubin Determinations. L. Zieve, E. Hill, M. Hanson and others.—p. 446.

Corticotropin in Experimental Poliomyelitis.—This report deals with experiments to determine the effect of corticotropin on the course of experimental poliomyelitis in mice and monkeys. In each of two experiments corticotropin was given in doses of 25 mg. every six hours to 12 rhesus monkeys for three days before intracerebral inoculation of the Minnesota strain of poliomyelitis virus. Administration of the drug was continued in six of the animals until the onset of paralysis. Six controls in each experiment received virus but no hormone. A physiological response was obtained with the hormone, as shown by the precipitous drop and subsequent low level in the number of circulating eosinophils and by the increased excretion of 17-ketosteroids in the urine. There were no changes in the fasting blood sugar values or glucose tolerance curves. In all 24 monkeys treated with corticotropin and in 10 of 12 controls poliomyelitis developed. In 4 of 12 monkeys receiving continuous treatment, paralysis occurred on the fifth day, two to three days earlier than the first paralysis in the 12 controls. Paralysis occurred 0.6 to 2.6 days earlier in the groups continuously treated than in the controls, and no earlier or 1.0 day earlier in the groups treated only before inoculation with the virus. This suggests that corticotropin not only fails to induce increased resistance to the virus but appears to render the host slightly more susceptible.

J. National Malaria Society, Columbia, S. C.

10:197-286 (Sept.) 1951. **Partial Index**

Effectiveness of Repellents Against Several Species of Anopheles Mosquitoes. B. V. Travis.—p. 197.

Comparative Susceptibility of Four Anopheline Mosquitoes to Plasmodium Relictum. A. V. Hunninen.—p. 216.

Identification of Early Larval Instars of Three Common Anophelines of Southern Georgia, U. S. A. S. G. Breeland.—p. 224.

Distribution and Control of Mosquitoes in Rice Fields in Stanislaus County, California. B. G. Markos.—p. 233.

Comparative Evaluation of Certain High Pressure Insecticidal Aerosols Against Musca Domestica. S. L. Resnick and R. L. Crowell.—p. 248.

Some Epidemiological Aspects of Malaria Control with Reference to DDT. P. F. Russell.—p. 257.

Journal of Nutrition, Philadelphia

44:487-632 (Aug.) 1951. **Partial Index**

Studies on Iodine Requirements of White Rats During Growth, Pregnancy and Lactation. H. E. Parker, F. N. Andrews, S. M. Hauge and F. W. Quackenbush.—p. 501.

Propylthiouracil, Thyroid, and Dietary Liver Injury. E. A. Sellers and R. W. You.—p. 513.

Effect of Time Factor and Calorie Level on Nitrogen Utilization of Young Women. R. M. Leverton, M. R. Gram and M. Chaloupka. —p. 537.

Study of Endogenous Nitrogen Output of College Women, with Particular Reference to Use of Creatinine Output in Calculation of Biological Values of Protein of Egg and of Sunflower Seed Flour. M. L. Bricker and J. M. Smith.—p. 553.

Transamination Reaction in Normal and B_6-Deficient Hamsters. G. Shwartzman and H. Hift.—p. 575.

Biosyntheses of Tryptophan and Niacin and Their Relationships. D. M. Bonner and C. Yanofsky.—p. 603.

Journal of Urology, Baltimore

66:315-476 (Sept.) 1951

*Influence of Alumina Gels on Prevention of Urinary Calculi. G. S. Barrett.—p. 315.

Traumatic Renal Infarction Concurrent with Massive Fat Embolism. G. M. Carver Jr.—p. 331.

Elliptical End-to-Side Connection Technique Applied to Repair of Ureteropelvic Juncture Constriction: Report of Three Cases. W. W. Miller Jr.—p. 340.

Spinal Cord Injury: Some Urological Aspects. G. C. Prather.—p. 347.

Pathological Changes in Urethra of Paraplegic Patients. A. E. Comarr and E. Bors.—p. 355.

Transurethral Prostatic Resection: Discussion of Some Principles and Problems. R. M. Nesbit.—p. 362.

Carcinoma of Prostate. J. C. Kimbrough and R. B. Rowe.—p. 373.

Histological Studies of Carcinoma of Prostate Treated by Estrogen. P. R. Rezek, M. M. Coplan, F. M. Woods and P. D. Melvin.—p. 379.

Treatment of Carcinoma of Prostate. R. H. Flocks, W. N. Harness, J. M. Tudor and L. Prendergast.—p. 393.

Needle Biopsy of Prostate: New Needle Biopsy Instrument. W. F. Melick. —p. 408.

Osteitis Pubis. H. Mortensen.—p. 412.

*Osteitis Pubis: Its Etiology and Pathology. L. L. Lavalle and F. C. Hamm.—p. 418.

Antihistamine—Possible Relationship to Other Factors Influencing Infection. W. P. Herbst.—p. 433.

Male Factor in Fertility and Infertility: II. Spermatozoon Counts in 1,000 Men of Known Fertility and in 1,000 Cases of Infertile Marriage. J. MacLeod and R. Z. Gold.—p. 436.

Role of Urologist in Problem of Infertility. I. Gersh.—p. 450.

Translumbar Serial Aortography: New Medium and New Technique. W. F. Melick, C. P. Yarbrough and T. D. Boler.—p. 458.

*Arteriography as Observed in 80 Patients at St. Louis City Hospital. G. W. Reagan Jr. and G. Carroll.—p. 467.

Alumina Gels to Prevent Urinary Calculi.—Renal stones are prone to recur after excision and to increase in size despite all known preventive measures. The treatment most commonly employed attempted to reduce urinary phosphate precipitation by continuous acidification of the urine. However, this treatment is often limited in effectiveness by the presence of ammonia-forming organisms in the urinary tract and impairment of renal function. Under such circumstances, a highly acidifying regimen is hazardous, because of the danger of acidosis. In many patients with urinary infection no amount of acidification will reduce the urinary pH to the desired acid range. The present study was undertaken to evaluate certain alumina gels in preventing formation and enlargement of renal stone and to determine the metabolic role of magnesium in the development of urinary calculi. It was found that alumina gel causes reduction in urinary inorganic phosphorus and increases excretion of phosphate in the stool of normal subjects and those with stones. Aluminum hydroxide gel (amphojel®) with magnesium trisilicate was administered, in doses of 30 to 45 cc. four times daily, for two and a half years to 34 patients to prevent urinary calculi. In 30 the treatment was successful. Of three patients who did not adhere to the regimen, one showed stone growth and the other passed a stone through a nephrostomy tube. In a third, stones formed proximal to a ureteral stricture. In a fourth patient, with idiopathic hypercalcinuria, recurrence was attributed to a high urinary calcium level. There was no evidence of decalcification of the skeleton or other ill effects in any of the patients studied. Observations on two uremic patients suggest that the phosphate is diverted through the gut, thus partially relieving the kidney. This may be of value in uremia by facilitating excretion of urea, with reduction of serum urea nitrogen. Ten patients who had received aluminum hydroxide gel with magnesium trisilicate previously were treated with an aluminum carbonate gel (basaljel®). It reduced urinary phosphorus excretion to lower levels than did plain aluminum hydroxide gel alone or combined with magnesium trisilicate and was found more palatable. The aluminum carbonate gel, therefore, appears to be the drug of choice for prophylaxis of calculi in the urinary tract. Since experiments suggest that a high urinary magnesium level may increase solubility of the calcium oxalate and maintain all calcium in solution, it appears advisable for stone-forming patients to take a diet adequate in magnesium to reduce endogenous oxalic acid excretion to a minimum.

Osteitis Pubis.—Osteitis pubis has been designated also as periostitis pubis, osteochondritis pubis, panosteitis pubis, osteoporosis of the pelvic bones, and acute bone atrophy of Sudeck. Lavalle and Hamm show that osteitis pubis is a true inflammatory disease of the anterior pelvic girdle and not a sterile necrosis of bone as in Sudeck's atrophy. This paper concerns pathological and bacteriological studies in three cases, all of which followed retropubic prostatectomy, and with the autopsy of a case in which healing occurred and the patient died 18 months later of another disease. In the three cases in which tissue was obtained, a clinical diagnosis of osteitis pubis was made and confirmed by roentgenological findings. In two cases a pure culture of Pseudomonas aeruginosa was obtained and in the third patient a mixed infection of Ps. aeruginosa and Proteus vulgaris existed. These gram-negative organisms are bacteria of low virulence and low pathogenicity. This explains the long incubation period between the prostatectomy and the onset of symptoms of osteitis pubis. More biopsies in other cases will be needed to show whether the organisms can produce this disease. Pathologically the lesion consists of subacute inflammatory infiltration and chronic inflammation involving the periosteum, bone, and cartilage. Plasma cells, eosinophils, and granulation tissue are seen in the inflammatory tissue. All of the known sulfonamides and antibiotic agents were tried, and none were found to be specific. Prophylaxis is the best treatment. The skin may be prepared with either green soap or the newer antiseptic detergents, but the authors are convinced that the ordinary preoperative painting of the suprapubic region is not sufficient to prevent osteitis pubis.

Arteriography.—The practical value of arteriography and its hazards are evaluated on 80 patients in whom arteriography was done at the St. Louis Hospital. Hazards mentioned by other investigators include hemorrhage, extra-aortic injection of contrast medium, acute iodinism, allergic reaction, mesenteric thrombosis, perforation of an intraperitoneal viscus, pneumothorax, aortic intramural injection, and injection of full quantity of contrast medium into a branch of the aorta. The authors concluded that translumbar arteriography is relatively safe if the procedure is performed with attention to detail by one with detailed knowledge of the regional anatomy and adequate skill. Proper preoperative evaluation of the patient's renal, cardiac, and liver reserve should be made. Sensitivity to contrast medium should be checked. The cases most likely to benefit from arteriography are those in which the diagnosis, prognosis, and management cannot be definitely stated by the previous urological examination. The method was found helpful in the differential diagnosis of renal masses: in hypernephroma, polycystic disease, solitary cyst, hydronephrosis, retroperitoneal tumors not arising from the kidney, and horseshoe or ectopic kidney. Arteriography was helpful also in selecting the proper operative procedure. Nephrectomy rather than plastic repair was indicated in the presence of scanty blood supply to a hydronephrotic kidney; renal vein involvement in hypernephroma suggested an inoperable condition; distribution of renal supply suggested heminephrectomy in certain cases of renal calculus with calycectasis. Arteriography was helpful also in aneurysms of the aorta, the renal artery, and in other branches of the aorta.

Kansas Medical Society Journal, Topeka

52:1-A-76-A (Supplement to Sept.) 1951

Surgical Treatment of Cervical Cancer. D. G. Morton.—p. 5-A.
Therapy with Radioactive Isotopes. J. H. Lawrence.—p. 7-A.
Cancer and Allied Diseases in Children. H. W. Dargeon.—p. 10-A.
Surgical Treatment of Advanced Cancer. E. D. Sugarbaker.—p. 14-A.
Congenital Defects and Associated Neoplastic Disorders in Children. H. W. Dargeon.—p. 21-A.
Carcinoma of Breast. E. D. Sugarbaker.—p. 23-A.
Tracer Research and Cancer. J. H. Lawrence.—p. 31-A.
Diagnosis of Accessible Cancer. D. P. Slaughter.—p. 35-A.
*Tumors of Spine and Spinal Cord—With Discussion of Diagnostic Significance of Back Pain. E. H. Campbell Jr. and R. D. Whitfield. —p. 40-A.
General Pathology of Endocrine Tumors. H. T. Karsner.—p. 45-A.
Treatment of Cancers of Anus and Rectum. G. T. Pack.—p. 48-A.
Relation of Pregnancy to Malignancy. D. G. Morton.—p. 57-A.
Treatment of Cancer of Face, Mouth and Neck with Irradiation. C. L. Martin.—p. 59-A.
Recent Advances in Cancer Therapy. D. P. Slaughter.—p. 64-A.
Alleviation of Cancer Pain. E. H. Campbell Jr. and R. D. Whitfield. —p. 71-A.

Tumors of Spine and Spinal Cord: Diagnostic Significance of Back Pain.—The diagnosis of neoplasms of spine and spinal cord is often delayed because backache, their most frequent presenting symptom, is found in such a variety of disorders that its origin is often difficult to trace. Posture, sprains, and occupation, together with some form of arthritis, doubtless account for the majority of such pains, but it is of great importance to recall that back pain is the cardinal symptom in most intrinsic disorders of the spine. The authors of this paper discuss neural pathways involved in back pain, the nerve supply of the vertebrae and their ligaments, the relation of spinal nerves to vertebral structures, and the distribution of pain in spinal nerve compression. Of the primary intramedullary tumors of the spinal cord, ependymomas and astrocytomas may be relatively benign, and if discovered in time, can be successfully removed. They produce little pain. Many of the extramedullary tumors (meningiomas and neurofibromas) are benign and slow-growing. Backache, root, and girdle pains may result from root compression. Bone metastases, particularly in the spine, are the first clinical signs of some malignant diseases (lung cancer) that remain silent for a long time. Either the vertebral body or the neural arch may be involved; the intervertebral disk is singularly resistant to malignant disease, a good point to remember in differential diagnosis. Hodgkin's disease, multiple myeloma, and Paget's disease may be associated with backache. Bone infections of various types, such as tuberculosis and osteomyelitis, may be confused with malignant diseases. Marie-Strümpell arthritis (rheumatoid arthritis of the spine) and various other lesions, such as osteoarthritis, osteoporosis, and such malignant diseases as retroperitoneal sarcoma, lymphosarcoma, and leukemia, may also result in low back pain.

Military Surgeon, Washington, D. C.

109:175-266 (Sept.) 1951. **Partial Index**

Initial Surgery of Compound Fractures and Concurrent Muscle, Nerve and Blood Vessel Injuries in Evacuation Hospital. M. E. Lichtenstein. —p. 175.
Response of T. Pallidum to Intramuscular Penicillin in Oil. R. A. Radke. —p. 191.
*Biliary Tract Emergencies in Neglected Cases and in the Aged. H. G. W. S. deBrun.—p. 192.
Redistribution Station as Therapeutic Facility. C. Buckman.—p. 194.
Spasm of Rectus Muscle. N. B. Jaffe.—p. 204.
Medical History of Russo-German War, 1941-1945: Brief Study, with Review of First-Born Official Medical History of Second World War. C. F. Mayer.—p. 207.

Biliary Tract Emergencies.—This paper concerns neglected cases of cholecystitis and acute cases occurring in elderly patients. The author includes in the neglected category those patients in whom the cholecystitis has advanced to gangrene and possibly rupture with beginning peritonitis. He believes that rising temperature, increase in pulse rate and in toxic symptoms, and changes in the blood picture call for emergency cholecystostomy or cholecystectomy. Conservative treatment (medical decompression drainage and maintenance of metabolic and fluid balance to aid liver function) in a patient with impending rupture of the gallbladder is not good practice. In the presence of obstruction of the biliary tract with damage to the liver cells, the clinician must depend on the patient's history and on palpation. A tender gallbladder with or without rigidity and with toxemia in the aged should call for lifesaving surgery. In the surgical treatment of the poor risk patient, the author advises the conservative cholecystostomy, which relieves tension and gives adequate drainage after the removal of obstructions, stones, tumors, or adhesions, thereby often saving a patient who would not have survived cholecystectomy.

New England Journal of Medicine, Boston

245:351-388 (Sept. 6) 1951

Primary Malignant Bone Tumors: Report of 93 Cases Observed at Pondville Hospital, 1928-1949. G. White and M. Elkin.—p. 351.
Metabolic Effects of Rice Diet in Treatment of Hypertension. J. H. Currens, E. A. S. Reid, E. A. MacLachlan and F. A. Simeone.—p. 354.
*ACTH and Cortisone in Diseases of Skin. W. F. Lever.—p. 359.
Treatment of Acute Thyroiditis with Antithyroid Drugs. W. S. Reveno and H. Rosenbaum.—p. 364.
Blood Grouping, Blood Banking and Blood Transfusion. L. Soutter, F. H. Allen Jr. and C. P. Emerson Jr.—p. 367.

Corticotropin and Cortisone in Skin Diseases.—More than 70 patients with diseases of the skin were treated with corticotropin (ACTH) or cortisone. For economic reasons the intravenous administration of corticotropin was used with increasing frequency. The drug, dissolved in 500 ml. of a 5% solution of dextrose, was given by constant drip over a period of 8 hours every day when 20 mg. was given and over a period of 12 hours every day when 30 or 40 mg. was given. The average daily intramuscular dose should be 100 mg. of corticotropin in four equally divided doses every six hours at the beginning of treatment, but in severe systemic diseases the optimal daily dose is 200 or 300 mg. per day. Younger children should receive about half the adult dose and older children nearly the adult dose. The amount of intramuscularly administered corticotropin should be multiplied by 2½ for oral or intramuscular doses of cortisone, and divided by 7 for the corresponding intravenous dose of corticotropin. In selecting the dosage one must rely above all on the clinical response. Corticotropin and cortisone were found to be of considerable value in the treatment of serious, frequently fatal dermatoses, such as pemphigus, systemic lupus erythematosus, dermatomyositis, and generalized exfoliative dermatitis. In these diseases corticotropin and cortisone represent the best treatment available and may be life-saving. Either drug may be used, since in all these conditions the adrenals are capable of responding adequately. Treatment should be started as soon as possible. In chronic inflammatory nonfatal dermatoses, corticotropin and cortisone give only temporary relief, so that their administration is justified only in severely ill patients. Once started, the treatment must be continued for long periods of time. In patients who are not seriously ill the not infrequent occurrence of undesirable side-effects with prolonged treatment may be worse than the disease. Short courses of corticotropin or cortisone are indicated in acute self-limited inflammatory dermatoses, such as drug eruptions, erythema multiforme, and anaphylactoid purpura, if the symptoms are severe enough. Some cutaneous diseases, especially atopic eczema, psoriasis, and chronic discoid lupus erythematosus have a tendency to recurrence, and the disease may be worse on discontinuance of therapy than it had been before. Corticotropin or cortisone were of little value in chronic, serious dermatoses, including scleroderma and mycosis fungoides.

New Orleans Medical and Surgical Journal

104:89-130 (Sept.) 1951

Surgery in Diabetes. J. Sabatier.—p. 89.
Polyps of Colon. C. E. Boyd.—p. 92.
Bronchoscopy in Pulmonary Diseases. W. P. Pirkey.—p. 96.
Surgery of Suppurative Pulmonary Disease. L. H. Strug.—p. 99.
Emergence of New Viral and Rickettsial Disease. J. P. Fox.—p. 103.
Health and Longevity. B. Freedman.—p. 111.

Pediatrics, Springfield, Ill.

8:309-454 (Sept.) 1951

Retroperitoneal Teratomas in Infancy and Childhood. E. E. Arnheim.—p. 309.
Absorption of α-Tocopherol and Tocopheryl Esters by Premature and Full Term Infants and Children in Health and Disease. L. J. Filer Jr., S. W. Wright, M. P. Manning and K. E. Mason.—p. 328.
Aneurysms of Sinuses of Valsalva: With Report of Case. R. E. L. Fowler and H. H. Bevil.—p. 340.
Electrocardiographic Patterns of Normal Children from Birth to Five Years of Age. G. Gros, A. Gordon and R. Miller.—p. 349.
Studies on Absorption and Distribution of Chloramphenicol. R. S. Kelly, A. D. Hunt Jr. and S. G. Tashman.—p. 362.
Syndrome of Ovarian Agenesis (Congenitally Aplastic Ovaries): Short Stature, Multiple Congenital Abnormalities and High Urinary Gonadotropins in a Two Year, Eight Month Old Female. H. K. Silver.—p. 368.
Congenital Stippled Epiphyses. G. D. Ford, M. Schneider and J. R. Brandon.—p. 380.
*Outbreak of Acute Nephritis in Adolescent Schoolboys. C. H. Kempe, R. W. Olmsted and E. C. Curnen.—p. 393.
Laboratory Aspects of Antibiotic Therapy. E. H. Spaulding.—p. 406.
Early Interest in Pediatrics in South Carolina. J. I. Waring.—p. 413.

Acute Nephritis in Schoolboys.—The coincidental occurrence of acute nephritis in four adolescent boys who were classmates in a private school appeared to be unusual and led to studies on the other boys. Seventeen other boys were also found to have hematuria. The incidence of hematuria among the 73 students in the two classes studied was 29%. Of the 21 boys with hematuria, 15 still had abnormally elevated Addis sediment counts seven weeks after the initial examination. Cultures of the nasopharynx were made on 85 students, and it was found that 11 boys did harbor hemolytic streptococci, including three of the boys with hematuria. The strains that were isolated, however, represented at least five different immunologic varieties. Determinations of antihyaluronidase, antistreptolysin O, and antistreptokinase in serum from 17 boys with hematuria and 20 without apparent hematuria revealed wide variations in titer, but no significant differences between the two groups. The occurrence of acute nephritis in groups of associated persons has been noted among soldiers, in whom it has been referred to as trench or war nephritis. It has also been encountered among adults in congested tenement buildings and in several children in families. To account for multiple cases of nephritis within a family, a familial predisposition has been suggested; and, in other groups, cold and damp surroundings and poor nutrition have been suggested as contributory factors. Since nephritis has been observed frequently after scarlet fever or other streptococcic infections, it has been suggested that nephritis may be caused by such infections.

Pennsylvania Medical Journal, Harrisburg

54:833-920 (Sept.) 1951

Diagnosis and Treatment of Hypopotassemia. W. A. Steiger.—p. 866.
Changing Concepts in Supportive Therapy of the Surgical Patient. J. D. Hardy.—p. 869.
Diet and Insulin in Diabetes. L. L. Pennock.—p. 872.

Plastic & Reconstructive Surgery, Baltimore

8:87-172 (Aug.) 1951

Experiences with Exposure Method of Burn Therapy. T. G. Blocker Jr., V. Blocker, S. R. Lewis and C. S. Snyder.—p. 87.
Application and Use of Nylon-Backing with Split-Skin Grafts. S. Glanz and H. M. Trusler.—p. 94.
Congenital Constricting Bands of Extremities. H. M. Blackfield and D. P. Hause.—p. 101.
*Local Use of Heparin in Plastic Surgery. W. W. Wong.—p. 110.
Elective Rhinoplasty. H. O. Bames.—p. 113.
Rethi Incision in Rhinoplasty. H. May.—p. 123.
New Instruments in Rhinoplasty. H. Koechlin.—p. 132.
Temporomandibular Arthroplasty in Treatment of Prognathism. M. Gonzalez-Ulloa.—p. 136.
Use of Vitallium Prostheses and Implants in Reconstruction of Mandibular Arch. J. J. Conley.—p. 150.

Local Use of Heparin in Plastic Surgery.—The survival of a graft in the earlier stages is dependent on the nutrition of the graft from the serum bed. Not only must the graft be nourished but its waste products must be removed. In other words, there must be an exchange of tissue fluids or a movement of tissue fluids between the graft and the recipient area. The graft fails to take when this metabolic exchange does not occur. Conditions favoring failure include local thrombosis of the vessels at the recipient and graft surfaces and/or a collection of serum and blood clot between the graft and the recipient area. If venous stasis and thrombosis can be prevented, the viability of the graft can be maintained. Heparin is the ideal agent to be used here. It prevents thrombosis, aids lymphatic drainage, and improves circulation of tissues by reducing blood viscosity without affecting capillary permeability. The amount of heparin used (10 mg. per cubic centimeter) depends upon the size of the area of congestion and averages about 0.25 to 0.5 cc. This is placed with a needle inserted between the graft and the recipient area. The heparin is deposited slowly into the region, care being taken not to get it too far beyond the congested area. The regular dressing is then applied. In 24 hours, the color of the area will improve. Local use of heparin has been of value in plastic surgical procedures that require use of tube pedicle flaps, sliding flaps, or full thickness skin grafts.

Psychiatric Quarterly, Utica, N. Y.

25:379-556 (July) 1951. **Partial Index**

Differential Psychotherapy of Borderline States. V. W. Eisenstein. —p. 379.
Personality Changes After Topectomy. P. H. Hoch.—p. 402.
Psychological Observations on Psychosurgery Patients. C. Landis. —p. 409.
Persistent Organic and Psychogenic Syndrome Following Prolonged Insulin Coma. R. W. Gans and L. P. Deutsch.—p. 424.
Test Evidence of Personality Change and Prognosis by Means of Rorschach and Wechsler-Bellevue Tests on 17 Insulin-Treated Paranoid Schizophrenics. M. B. Lipton, S. Tamarin and P. Lotesta.—p. 434.
Juvenile Amaurotic Family Idiocy: Features Suggestive of Precocious Senility. R. M. Cares.—p. 445.
Psychopathology of Personality Functions in Psychopathic Personalities. F. A. Freyhan.—p. 458.
Incidence of Pulmonary Tuberculosis Among Employees in 14 Institutions for the Mentally Ill. J. Katz, R. E. Plunkett and F. MacCurdy. —p. 500.

Psychiatry, Washington, D. C.

14:255-360 (Aug.) 1951. **Partial Index**

Characterological Significance of Typical Anxiety Dreams. I. D. Harris. —p. 279.
Remarks on Pathogenesis and Treatment of Schizophrenia. A. Szalita-Pemow.—p. 295.
Family Care: Neglected Area of Research. J. M. Stycos.—p. 301.
Treatment of Psychosis of General Paresis with Combined Sodium Amytal and Psychotherapy: Report of Case. R. S. Wallerstein. —p. 307.
Logical Status and Methodological Problems of Research in Clinical Psychiatry. G. Devereux.—p. 327.
Problems of the Self in Light of Psychopathology of Schizophrenia. D. W. McKinney.—p. 331.

Psychoanalytic Quarterly, Albany, N. Y.

20:349-510 (July) 1951. **Partial Index**

Behavior of Stomach During Psychoanalysis: Contribution to Method of Verifying Psychoanalytic Data. S. G. Margolin.—p. 349.
Psychoanalytic Approach to Mass Production. G. Pederson-Krag.—p. 434.

Public Health Reports, Washington, D. C.

66:1195-1226 (Sept. 21) 1951

Preparation of Dried Antigen and Antiserum for Agglutination-Inhibition Test for Virus Influenza. M. R. Hilleman, E. L. Buescher and J. E. Smadel.—p. 1195.
*Yolk Sac Technique for Routine Isolation of Brucella: Injection of Clotted Blood Specimens into Embryonating Eggs with Recovery of All Three Species. K. Gay and S. R. Damon.—p. 1204.
Modification of the Winter and Sandholzer Media and Technique for Enterococci Detection. Wen-Lan Lou Wang and S. G. Dunlop.—p. 1212.

66:1227-1262 (Sept. 28) 1951

Age Incidence of Specific Causes of Illness Found in Monthly Canvasses of Families—Sample of Eastern Health District of Baltimore, 1938-43. S. D. Collins, F. R. Phillips and D. S. Oliver.—p. 1227.
Changing Causes of Death in Childhood. H. A. Kahn.—p. 1246.
Coronary Occlusion with Myocardial Infarction in Young Males: Report of Four Cases. T. Levy.—p. 1248.

Yolk Sac Technique for Isolation of Brucella.—Clots from specimens of blood received for diagnostic agglutination tests were employed. Following completion of the serological test, one-half of the clot was prepared for animal and egg inoculations. A sufficient number of eggs was incubated each Monday and Friday, so that each day of the week 3-, 4-, or 5-day-old live embryos were available. Before and after injection, all eggs were kept at 36 to 37 C. Examinations consisted of two or three subcultures from the yolk at about 4-day or 5-day intervals and, in some instances, a final harvesting of all live embryos on the 18th or 19th day of total incubation. A total of 138 blood clot specimens, of which 123 were from human sources, were inoculated into embryonating eggs. Four suis strains were recovered from the 15 animal clots included in the study. The 123 human clots were further examined by enrichment in broth and 95 of them by guinea pig inoculation. Twenty-seven clots, upon injection into the eggs, resulted in a heavy contamination and rapid death of the embryos. Thus, only 96 specimens were considered satisfactory for egg inoculations, and from this number 14 recoveries—1 melitensis, 4 suis, and 9 abortus—were made, with the egg technique yielding all but one suis strain. From these same 96 specimens the guinea pigs yielded one Brucella strain and the broth, six. Eleven isolations came from patients with acute symptoms at the time of collecting the specimens, while the other three were from asymptomatic patients. No recoveries were made from patients with chronic complaints. All isolations came from persons with agglutination titers of at least a 1:80 serum dilution. The egg embryo yolk sac technique is recommended because: (*a*) it provides living tissue cells in a compact medium; (*b*) it permits recovery of all three types of Brucella; (*c*) it gives comparatively quick results; and (*d*) it entails a minimum amount of danger for laboratory personnel.

Quarterly J. Studies Alcohol, New Haven, Conn.

12:355-562 (Sept.) 1951

Effect of Acute Alcohol Intoxication on Adrenal Glands of Rats and Guinea Pigs. J. C. Forbes and G. M. Duncan.—p. 355.
Psychosis During Treatment of Alcoholism with Tetraethylthiuram Disulfide. J. Guild and N. B. Epstein.—p. 360.
*Further Clinical Experience with Tetraethylthiuram Disulfide in Treatment of Alcoholism. N. B. Epstein, J. Guild and E. Davidoff.—p. 366.
Treatment of Alcoholism by Nutritional Supplement. J. A. Smith, P. A. Dardin and W. T. Brown.—p. 381.
Alcoholism and Lobotomy. B. Talbot, E. C. Bellis and M. Greenblatt. —p. 386.
Newsletter for Alcoholics: Program of Continued Treatment and Social Service Follow-Up of Alcoholic Patients Discharged in Rural Area. D. M. Wayne and E. R. Phillips.—p. 395.
Life History of an Ex-Alcoholic: With Evaluation of Factors Involved in Causation and Rehabilitation. E. Hanfmann.—p. 405.
Studies of Drinking in Jewish Culture. S. D. Bacon.—p. 444.
Educational Characteristics of Alcoholics: Some Critical Comments. E. M. Lemert.—p. 475.
Problem of Value in Study of Alcoholism. D. A. Stewart.—p. 489.
Problems of Alcoholism as Related to Health Education in Secondary Schools: Panel Discussion. M. A. Block, D. C. Duttweiler, O. Milich and others.—p. 495.

Tetraethylthiuram Disulfide in Alcoholism.—This report reviews observations on 125 patients (including 55 previously reported) who were treated with tetraethylthiuram disulfide and have been under observation for from several weeks to 15 months. Tetraethylthiuram disulfide was found to be an effective weapon in the medical armamentarium presently available to combat alcoholism, but it is only one of several factors. Extreme caution is necessary in patients who have cardiac or cardiovascular disease. Changes in the differential leukocyte count deserve further investigation. Electroencephalographic studies indicate that tetraethylthiuram disulfide has some central sedative action, which explains why most patients show some somnolence. At the end of 15 months of therapy, 50% of patients who had previously failed in other therapeutic attempts, including Alcoholics Anonymous, showed improvement ranging from slight to complete social recovery. The pattern of changes after the first three months of therapy, and definitely after six months, showed a tendency toward either loss of contact with the clinic and no change or readjustment and social recovery. Faced with the anxiety of increasing inadequacy of adjustment, most alcoholics revert to drinking before breakdown and psychosis appear. The authors believe that this treatment should be carried out by nonpsychiatric medical practitioners under psychiatric guidance. The initial stages of therapy may be most effectively handled at a psychiatric outpatient unit, and after the reaction session the patient should be referred to his family physician for further care. Tetraethylthiuram disulfide may be administered on an outpatient basis with satisfactory results.

FOREIGN

British Journal of Surgery, Bristol

39:1-96 (July) 1951

Extrathecal Haemangiolipomas of Spinal Canal. J. Taylor, B. J. Harries and P. H. Schurr.—p. 1.
Pituitary Tumours: Observations on Large Tumours Which Have Spread Widely Beyond the Confines of Sella Turcica. H. C. Trumble.—p. 7.
Metastasizing Goitre: "Hürthle Cell" Tumour of Thyroid and Skull. R. C. Shaw.—p. 25.
Bone-Bank in Neurosurgery. H. Elliott and H. J. Scott.—p. 31.
Endo-Aneurysmorrhaphy: Report of Three Cases of Non-Traumatic Aneurysm so Treated. L. Rogers.—p. 35.
*Congenital Absence of Gall-Bladder: Cholangiography: Gall-Stone Solvents. A. J. H. Rains.—p. 37.
*Fate of Tumour in Infantile Hypertrophic Pyloric Stenosis. G. Armitage and J. A. Rhind.—p. 39.
*Annular Pancreas. J. R. Anderson and H. Wapshaw.—p. 43.
*Annular Pancreas. B. J. Bickford and J. C. F. L. Williamson.—p. 49.
Leiomyosarcoma of Pancreas. C. F. Ross.—p. 53.
Oligodendroglioma with Extracranial Metastases. T. G. I. James and W. Pagel.—p. 56.
Use of Modified Miller-Abbott Tube in Treatment of Duodenal Fistula. A. M. N. Gardner.—p. 65.
Perforation of Adenocarcinoma of Ileum. P. Somerville.—p. 71.
Chondrosarcoma of Ilium Complicating Hereditary Multiple Exostoses. R. S. Monro and J. S. R. Golding.—p. 73.
Acute Diverticulitis of Caecum and Ascending Colon. D. R. K. Reid. —p. 76.
Case of Traumatic Uraemia. H. N. Green, H. B. Stoner, H. J. Whiteley and D. Eglin.—p. 80.

Congenital Absence of Gallbladder.—A woman, aged 61, was hospitalized with a provisional diagnosis of acute cholecystitis. Her attacks of subcostal pain on the right side had recently become more frequent and severer, and she was advised to have her gallbladder removed. Repeated cholecystograms failed to reveal a shadow of the gallbladder. Laparotomy revealed a normal-sized liver but no gallbladder, its fossa being represented by a deep fissure. A membrane extended from the anterosuperior aspect of the first part of the duodenum to the porta hepatis; it appeared to be continuous with the lesser omentum on the left. The common duct and portal vein were behind it. This membrane was divided and revealed an enormously dilated common duct. Many calculi could be felt in it. Eight mixed calculi were removed from the hepatic ducts above and two smaller ones from the common duct below. Ether was used to dissolve remaining stones or biliary sludge. Its use and dangers as a solvent for gallstones is discussed; it probably will never replace surgical removal, but it may be helpful in removing the overlooked stone, if it is discovered before drainage tubes are removed. Cholangiography was used postoperatively in the woman whose case is reported, to demonstrate the absence of an intrahepatic gallbladder, any remaining stones in the ducts, and the free pathway for bile into the duodenum. Information on this subject by other writers is summarized, including previous reports of 71 patients with congenital absence of the gallbladder.

Infantile Hypertrophic Pyloric Stenosis.—The Fredet-Ramstedt operation of pyloromyotomy is now firmly established in the treatment of infantile hypertrophic pyloric stenosis The patient reported on was treated before Ramstedt introduced his operation. She was born in September, 1909, and was subjected to a posterior gastrojejunostomy in November of the same year. As a child she could not eat as much as other children, but was apparently normal except for discomfort after a heavy meal. In 1935 she began to have vague indigestion, but a barium meal examination revealed a normal gastrojejunostomy. The discomfort was diagnosed as recurrent appendicitis, and the appendix was removed. It was found to be kinked, infected, and adhering to the outer side of the cecum. The symptoms were unrelieved following appendectomy. In April, 1950, the patient had an attack of severe acute abdominal symptoms, which necessitated opening of the abdomen by a right paramedian incision. No lesion was found until the duodenojejunal flexure was reached, where a perforated jejunal ulcer was discovered. Reexamination of the pyloric region revealed gross thickening of the pyloric canal, the appearance being identical with that seen at operation on infants with congenital pyloric stenosis; the patency of the pylorus seemed so doubtful that it was felt safer to perform partial gastrectomy than a simple closure of the perforation. Following subtotal gastrectomy with precolic gastrojejunostomy, progress was uneventful. The surgical specimen revealed an old congenital hypertrophic pyloric stenosis, neonatal posterior gastrojejunostomy, a tiny submucous focus of suppuration, and mucosal atrophy. The literature contained reports of 11 cases of this type, in all of which hemorrhage was the major feature. Dyspeptic symptoms were unusual, and in many cases jejunitis rather than a chronic jejunal ulcer was reported. This case of perforation brings the number to 12. The results of medical treatment are difficult to evaluate, but it is thought that if the infant can be kept alive, spontaneous relief of symptoms occurs within a few months, and the exponents of medical treatment claim a high percentage of cures. Why the pyloric tumor should persist after gastrojejunostomy and regress after medical treatment is not clear, but the persistence of the tumor must be explained by any future theory concerning the nature of infantile hypertrophic pyloric stenosis.

Annular Pancreas.—The authors report a case of annular pancreas in a woman, aged 52. The presenting symptom was jaundice, apparently due to pressure on the lower end of the common bile duct by the inflamed pancreatic annulus. Partial resection of the ring was followed by freedom from symptoms.

Annular Pancreas.—The symptoms in the 25-year-old man whose case is reported suggested total obstruction of the second part of the duodenum. The etiology was unknown, and it was not possible to arrive at a positive diagnosis, but the presence of some congenital abnormality was postulated, possibly a duodenal mesentery, with partial obstruction made complete by the huge distention of the stomach. Laparotomy revealed a small amount of free fluid in the peritoneal cavity, with some edema of the greater omentum. The entire pancreas was enlarged, hard, and nodular, and a ridge of hard tissue extended to the right in front of and around the second part of the duodenum, causing obstruction in this region. The process was thought to be carcinomatous. A posterior gastrojejunostomy was performed, and convalescence was uneventful; symptoms were completely relieved. On further consideration and in view of the patient's very good general condition, it was thought that he had chronic inflammation in an annular pancreas rather than carcinoma. This diagnosis is confirmed by the fact that he has remained well since the operation. The literature on annular pancreas is briefly reviewed. The condition can easily be missed before, or even at, operation, and it is probable that the incidence is higher than the recorded number of cases suggests. Gastrojejunostomy is probably the best method of treatment, but, if the constriction ring is thin and easy of approach, it may be divided instead. With operation the prognosis is relatively good.

British Medical Journal, London

2:623-688 (Sept. 15) 1951

Action of Certain Drugs on Respiration. G. Liljestrand.—p. 623.
Neural Control of Pituitary Gland: II. Adenohypophysis, with Special Reference to Secretion of A.C.T.H. G. W. Harris.—p. 627.
Comparative Action of E. C. T. and of Pituitary Anterior Lobe Hormones on Thyroid Function. M. Reiss, R. E. Hemphill, R. Maggs and others.—p. 634.
Anaemia of Rheumatic Fever. J. B. Cochran.—p. 637.
Incidence of Congenital Malformations and Their Relation to Virus Infections During Pregnancy. W. P. D. Logan.—p. 641.
*Tromexan and Dicoumarol. D. G. Illingworth.—p. 646.
Dosage of Penicillin in Weil's Disease. C. W. Lawson.—p. 648.
Ergot Poisoning at Pont St. Esprit. Gabbai, Lisbonne and Pourquier. —p. 650.

Ethyl Biscoumacetate and Bishydroxycoumarin.—Anticoagulants were given to 130 patients with vascular thrombosis and its sequelae. Of the 130, ethyl biscoumacetate (tromexan®) was given in tablets of 300 mg. to 60 with cardiac infarction and 12 with extracardiac thrombosis. A loading dose of 1,200 mg. proved safe and became standard, although 2,100 mg. was given twice without incident. Between 12 and 24 hours after starting treatment, and before more ethyl biscoumacetate was administered, a prothrombin concentration test was performed; 70% of the patients were observed to have less than 50% prothrombin and 34% had entered the therapeutic range of 10 to 30% prothrombin. Usually the necessary maintenance dose lay between 300 and 600 mg. There were pronounced variations in susceptibility to ethyl biscoumacetate. A given patient's tolerance may alter widely from day to day, and there is a tendency to sudden escapes from control. It is therefore not desirable to give the drug without laboratory control. No correlation of dosage with weight or age is possible, but an initial prothrombin reading may assist in gaging the size of the loading dose. Of the 60 patients with cardiac infarction, 51 left the hospital with an end result regarded as satisfactory, and 9 died in the hospital. The fatal cases, with the exception of one patient who was inadequately treated, were poor risks. Of the 12 patients with extracardiac thrombosis, the end result was regarded in all as satisfactory. Bleeding incidents occurred in 2 of the 72 patients treated with ethyl biscoumacetate; both suffered a hematemesis from a clinically active duodenal ulcer, but neither required any more active treatment than discontinuation of the drug. Caution is necessary in treating peptic ulcer patients. Benzidine tests on the feces may be helpful in the control of their treatment. Fifty-eight patients, 36 with cardiac infarction and 22 with extracardiac thrombosis, were treated with bishydroxycoumarin (dicumarol®). Of the 36 patients, 29 left the hospital, the immediate end result being satisfactory; 7 patients died. Of the 22 patients, 19 left the hospital with an end result regarded as satisfactory, and 3 died. Of the total of 58 patients, 13 had hemorrhagic complications. All received intravenous vitamin K, and three required transfusion. Ethyl biscoumacetate is superior to bishydroxycoumarin. As it has a shorter "lag period" the use of heparin may be either obviated or restricted to a single intravenous dose. The clinical results compare favorably with those of bishydroxycoumarin therapy. Hemorrhagic complications are not only less frequent but much less severe. A fall in prothrombin concentration below 10% was not regarded as serious in the ethyl biscoumacetate-treated group.

Deutsche medizinische Wochenschrift, Stuttgart

76:1133-1164 (Sept. 14) 1951. **Partial Index**

Present Status of Mortality from Tuberculosis with Regard to Age and Sex in Germany and in Several Other Countries. F. Ickert and A. Keutzer.—p. 1133.
Damage to the Liver Produced by Amithiozone. H. Hörlein.—p. 1139.
*Formal Pathogenesis of Boeck's Disease. H. Hartweg.—p. 1144.
Ambulatory Chemotherapy in Tuberculosis. R. Griesbach.—p. 1146.
Practical Aspects of Subcutaneous Infusion of Paraaminosalicylic Acid. G. W. Lauenstein and W. Rockstroh.—p. 1148.
Chemotherapy in Pulmonary Tuberculosis Complicated by Diabetes Mellitus. K. J. Irskens.—p. 1150.
Penicillin in Treatment of Pleural Exudate Accompanying Pulmonary Tuberculosis. E. Lehmann.—p. 1151.

Pathogenesis of Boeck's Sarcoid.—An attempt is made to clarify the pathogenesis of Boeck's sarcoid on the basis of observations in 70 cases. The problem of etiology is disregarded. In earlier reports the author discussed the course of the pulmonary lesions of Boeck's sarcoid and the significance of this localization for the disease in general. In these earlier studies it was found that the lungs are more frequently involved than is any other organ. The pulmonary lesion usually begins with a swelling of the hilar lymph nodes, which is usually bilateral. This stage is followed by miliary dissemination into the lungs, which may be preceded by the appearance of a fine reticulation. Then follows a more or less severe fibrosis of the pulmonary interstitial tissue through hyalinization of the lymph channels. As a rule, this completes the process in the lungs, but there may be a fourth stage, which takes the form of an indurating infiltration, and a fifth or nodular stage. The author further discusses the time relationship between the various stages of the pulmonary lesions and the involvement of other organs, particularly the lymphatic system, and the eyes, bones, and skin. In contradistinction to Schaumann, he regards the lungs as the portal of entry for the disease. Although the first demonstrable lesions occur in the hilar nodes, the lungs may become involved subsequently by retrograde lymph flow from the hilar region or by way of the blood stream during generalization of the process. It is assumed that the extrapulmonary organic foci develop during the second stage of the pulmonary process. The apparent difference in the time of their appearance can be explained by the specific differences in the organs involved. Subsequently, the lesions in the different locations follow a development according to their own individual characteristics.

Lancet, London

2:457-504 (Sept. 15) 1951

The Patient and the Physician. J. Parkinson.—p. 457.
Mechanism and Physiotherapeutic Relief of Pain. C. Shields.—p. 459.
*Ulcerative Colitis: Diagnostic Problem and Therapeutic Warning. B. N. Brooke and W. T. Cooke.—p. 462.
Tuberculin Sensitivity of Children in North-East Scotland: Mantoux and Tuberculin-Jelly Reactions Compared in 1499 Patients. N. S. Clark. —p. 464.
Serum-Creatine in Disease of Thyroid. W. J. Griffiths.—p. 467.
*Effect of Hexamethonium Bromide in Arterial Hypertension. L. Werkö, A. R. Fisk, G. Wade and H. Eliasch.—p. 470.
Streptomycin Treatment of Haemophilus Influenzae Meningitis Complicating Primary Atypical Pneumonia. A. Dolphin and R. D. Popham. —p. 472.
Primary Carcinoma of Peripheral Bronchi. C. Raeburn.—p. 474.
Genital Tuberculosis with Pulmonary Involvement: Observations on Incidence and Treatment. D. T. O'Driscoll.—p. 476.
Protein Shock from Intravenous A.C.T.H. L. A. Wilson.—p. 478.
Work on the Land: Its Potentialities for Resettlement of the Disabled. G. H. Dobney.—p. 492.
Cancer Education of the Public. R. W. Raven and J. Gough-Thomas. —p. 495.
Publicity in Cancer. O. D. Beresford and T. A. Watson.—p. 496.

Ulcerative Colitis.—In selecting patients with colitis for surgical treatment it is important that the clinical entity of ulcerative colitis be clearly defined. The authors regard as ulcerative colitis in the restricted sense of the term the lesion centered in and severest in the descending colon. Right-sided ulcerative colitis may be a disease separate from the usual form, with maximal disorganization on the left. Right-sided colitis is possibly secondary to an ileal lesion. The entire colon can become involved, and the disease can thus be confused with left-sided colitis. The treatment of the two types is different, because the usual forms of surgical treatment for ulcerative colitis, involving ileostomy or ileosigmoidostomy, have disappointing results when used for the right-sided disease. It is therefore necessary to ascertain that the disease is limited to the colon before such operations are considered. The discovery of the right-sided type of colitis should always raise suspicion of an ileal lesion, but this may even be present when the whole colon is diseased. A progress meal with nonflocculating colloidal solution of barium gives the best chance of observing the "sawtooth" appearance in the ileum or an area devoid of the usual contractions and dilations. A fat-balance test may indicate a failure of absorption, and a macrocytic anemia, abnormality of serum protein levels, or severe glossitis may be further indications of ileal dysfunction, although they are not always present. The discovery of an ileal lesion is a contraindication to operations designed to divert the fecal stream from the colon, with or without excision of the large bowel, for there is a strong tendency for the disease to become manifest above the ileostomy, or, in the case of ileosigmoidostomy, above and below the anastomosis. In such cases vagal section may provide relief.

Effect of Hexamethonium Bromide in Arterial Hypertension.—This paper reports the effects of hexamethonium bromide in hypertensive patients and compares them with those of tetraethylammonium bromide. Studies were made on 30 hypertensive patients with a blood pressure persistently above 160/100 mm. Hg. The spontaneous daily variations in blood pressure were assessed over 24 hours, and then the responses to the following drugs were tested: amobarbital (amytal®) sodium and intravenously administered tetraethylammonium bromide and hexamethonium bromide. It was found that hexamethonium bromide caused a greater fall in systemic blood pressure than did either amobarbital or tetraethylammonium bromide. The authors consider 0.2 mg. per kilogram of body weight the largest intravenous dose of hexamethonium bromide that can be given safely. Catheterization in three cases showed a fall in pressure in the pulmonary capillaries and in the pulmonary artery; a decrease in the cardiopulmonary blood volume, and (in two of the three cases) a fall in cardiac output. These changes may be due to pooling of blood in the systemic circuit. Hexamethonium bromide is from 25 to 35 times as potent as tetraethylammonium bromide and is longer-acting. There is a considerable variation in response to hexamethonium bromide, both from case to case and in the same case from time to time.

Medical Journal of Australia, Sydney

2:69-100 (July 21) 1951. **Partial Index**

Paediatric Psychiatry: Its Scope and Limitations. J. F. Williams.—p. 76.
Colostomy Closure. T. E. Wilson.—p. 79.
Vaginal Delivery After Previous Caesarean Section. W. I. Hayes.—p. 82.

2:101-136 (July 28) 1951. **Partial Index**

Outline of Control of Non-Specific Urinary Tract Infections. D. B. Duffy.—p. 107.
Polycystic Disease of Kidneys. J. B. Cleland.—p. 109.
Enuresis and Toilet Training. J. Bostock and M. G. Shackleton.—p. 110.
Primary Glaucoma. H. C. Beckett.—p. 113.
Use of 12-Volt Ultra-Violet Bulb for Diagnosis of Ringworm Infections of Scalp. M. Havyatt.—p. 115.
Angiocardiography. M. L. Powell and H. G. Hiller.—p. 116.
Treatment of Acute Leuchaemia by Folic Acid Antagonists. J. A. McLean.—p. 119.
Chloroma. F. G. Fenton and H. Ryan.—p. 83.
Case of Progressive Subcutaneous Gangrene of Spontaneous Origin. N. L. Newman.—p. 86.

Minerva Chirurgica, Turin

6:311-348 (June 15) 1951. **Partial Index**

*Five Cases of Cerebral Arteriovenous Aneurysm Treated by Ligation of Carotid Artery. P. E. Maspes and G. Kluzer.—p. 311.
Jacksonian Epilepsy Due to Extracortical Pseudoporencephaly. G. Kluzer and F. Marossero.—p. 320.
Rare Case of Acquired Inguinointerstitial Hernia Simulating Spontaneous Ventral Hernia. C. Di Maggio.—p. 323.
*Massive Hemorrhages Associated with Extrapleural Pneumothorax. G. Bardesono.—p. 326.
Cirrhosis of Liver in Ex-Prisoners of War (Japan): Preliminary Communication. E. G. McQueen.—p. 122.

Ligation of Carotid Artery in Cerebral Arteriovenous Aneurysm.—Ligation of the common carotid artery was performed in three male patients, 11, 23, 40 respectively, and in a woman, 27, with cerebral arteriovenous aneurysm. Ligation of the common and of the internal carotid arteries was performed in a man, 35, who also had cerebral arteriovenous aneurysm. The first symptoms consisted of one or more episodes of subarachnoid hemorrhage in three patients, cerebral hemorrhage in one patient, and convulsive attacks in the other. Focal signs were present in all cases and made it easier to determine from which side the diagnostic arteriography was to be performed. Total removal of the aneurysm was deemed impossible, because its location implied severe risks. Prior to ligation the carotid artery was occluded for 20 minutes with Matas' compressor to determine whether any serious symptoms would appear. The artery was then ligated but not sectioned. Electroencephalograms were taken in two patients before, during, and after the ligation. Immediate and late complications were not observed in any case. There was regression of the neurological symptoms, and hemorrhages did not recur, not even in the woman in whom they had always occurred with menstruation. Two years after the operation the boy is well and leads a normal life, the woman has resumed her work as a teacher, and conditions in the other three patients are still unchanged. The definite effectiveness of the ligation of the carotid artery has not yet been proved. If it causes a diminution of the circulation with resulting injuries to the nervous parenchyma, it should be omitted. Also, it would be useless in instances of cerebral arteriovenous aneurysm in which disturbances are not present and a good circulation is therefore presumed. However, the good results obtained in the last years justify the assumption that ligation of the carotid artery may be beneficial in some cases of cerebral arteriovenous aneurysm.

Massive Hemorrhages Associated with Extrapleural Pneumothorax.—An investigation was made in an attempt to establish the cause of massive hemorrhages associated with extrapleural pneumothorax. These hemorrhages may occur during the surgical intervention owing to the rupture of a vessel, in which case they are easily controlled; or they may occur 24 to 48 hours after the operation as a result of a vasomotor reaction. In this case formation of hematoma and perforation may result. According to the author these hemorrhages are attributable to an erroneous indication for the extrapleural pneumothorax. He performed this operation in 200 patients with tuberculosis. Massive hemorrhage developed in 10 (5%) of them, and the postoperative course proved that there had been an incorrect indication for this intervention. Of these 10 patients, 6 had medium-sized tuberculous lesions localized in the upper right lobe. The remaining four had the exudative type of lesion, but the extrapleural detachment was difficult because of tenacious adhesions. They were, therefore, instances in which thoracoplasty would have been justified. The reason for massive hemorrhages in cases of erroneous indication may be easily understood if one considers the anatomic changes (fibrosclerosis, vascular neoplasms, inflammatory hyperemia) that are present in the pleuropulmonary and in the pleuromuscular areas in cases of tuberculosis of long duration. Thoracoplasty is, in general, indicated in the presence of old lesions. Often, however, clinical, roentgenologic, and anamnestic data are insufficient for the physician to determine the date of onset of the disease, so that the apparent indications are erroneous. In case of massive hemorrhage caused by the rupture of a vessel, hemostasis is the treatment of choice, even if it implies a second intervention. In instances of a massive hemorrhage caused by a vasomotor factor, the blood should be aspirated, and irrigation with hot water combined with administration of epinephrine hydrochloride should follow. If fibrin deposit has already occurred, making lavage impossible and insufficient, costal drainages should be performed to remove the deposit. Then, if necessary, thoracotomy and injections of penicillin, streptomycin, para-aminosalicylic acid, and sulfones should follow to prevent secondary infection and chronic empyema.

Ophthalmologica, Basel

122:129-192 (Sept.) 1951. **Partial Index**

Contribution to Etiology of Pseudoglaucoma (Pseudoglaucoma and Hypotension of Intracranial Fluid). J. Štajduhar.—p. 129.
*Papilloretinitis After Vaccination with BCG. L. Gát and L. Mándi.—p. 143.
Biologic Significance of Pigmentation of Mesenchymal Tissues of Eye. R. Sondermann.—p. 166.
Physiological Foundations of Depth Vision. E. Fleischer.—p. 172.
Rigidity of Cornea in Glaucoma Without Intra-Ocular Hypertension. R. Weekers.—p. 187.

Papilloretinitis.—In examining a large number of tuberculous patients in 1947 and 1948, Gát had observed typical tuberculous changes in the papilla and the surrounding retina. The nasal side of the papilla appeared washed-out and edematous, the edema extending to the surrounding retina to a width of about half that of the papilla. The other parts of the papilla were intact, but the blood vessels were slightly dilated. Subsequently, most of the changes subsided, but connective tissue proliferated along the veins. At first Gát regarded this form of papilloretinitis as a toxic symptom, since the majority of the patients whom he examined at that time had severe pulmonary tuberculosis. Subsequently, however, Gát and Mándi found this phenomenon also in benign forms of tuberculosis. The transitory and recurrent nature of the changes and the pathohistological aspects (exudative and productive phase of allergic inflammation) suggested that papilloretinitis was an allergic rather than a toxic phenomenon. Complaints of headaches, vertigo, gastrointestinal disturbances, articular pains, and neurological symptoms suggest that allergic reactions occur also in other organs. On further investigation the authors found tuberculoallergic retinitis in 14 of 110 persons who had no complaints. Seven of these, who had no active pulmonary lesions, were tested with tuberculin. Five gave a positive, one a doubtful, and one a negative reaction. Of 25 patients who originally had negative tuberculin tests and had no changes in the eyegrounds, 15 showed a new papilloretinitis from 8 to 12 weeks after vaccination with BCG. In 12 of the 15 the tuberculin test was repeated and showed positive results in all. This proves a definite connection between the appearance of papilloretinitis and a tuberculous allergy. Since the tuberculous allergic papilloretinitis is present in miliary tuberculosis, in basal meningitis, in widespread cavernous phthisis as well as in benign forms of primary infection, and in those who have only been vaccinated with BCG, it is not a characteristic symptom of tuberculous meningitis, or a specific toxicosis, but is a temporary sequel of tuberculous allergy.

Paris Médical

41:373-388 (Sept. 8-15) 1951

Place of Ferrosoferric Complex of Ascorbic Acid in Treatment of Ulcer Disease. J. J. Dubarry.—p. 373.
Sex Cycle and Blood Coagulation. A. Fiehrer and G. H. Lavergne. —p. 376.
*Temporary Hemiplegia Due to Hypoglycemia: Localizations of Neuro-encephalic Effects of Hypoglycemia; Sugar Therapy in Neurology and Neuropsychiatry. J. Albert-Weil.—p. 380.

Temporary Hemiplegia Due to Hypoglycemia.—An emaciated woman, aged 46, with pronounced psychasthenia of long duration, wanted to gain weight. Her physician prescribed a subcutaneous injection of 30 to 32 units of protamine zinc insulin every evening before supper and a diet rich in sugar, flour, and pastries. One hour after the first injection of protamine zinc insulin the patient sweated profusely, her vision was disturbed, there was a tendency to obnubilation, and a sensation of excessive hunger. The disturbances subsided rapidly after the ingestion of large amounts of sugar and carbohydrates. The next morning she had a vague feeling of discomfort and hunger, which again subsided after the ingestion of sugared food. She did not receive an insulin injection that evening, but during the night right hemiplegia developed with Babinski's sign. She was conscious, had no pain, and her temperature was normal. After the ingestion of eight lumps of sugar the paresis completely subsided and Babinski's sign disappeared. On examination several days later she was perfectly normal. The author stresses the polymorphism of hypoglycemic manifestations, the complexity of their pathogenesis, and the difficulty presented by their neurocerebral localization. The delayed effect of protamine zinc insulin in the author's case suggests that this drug should not be used in nondiabetic emaciated persons in treatment to increase their weight. The hypoglycemia undoubtedly affected the motor pathways and particularly the pyramidal fasciculi. Since hypoglycemia due to insulin largely reduces the oxygen consumption by the brain, the author suggests that in certain neurocerebral conditions, such as asphyxia, carbon monoxide poisoning, stroke due to cerebral softening or cerebral hemorrhage, encephalitis, multiple sclerosis, and schizophrenia, treatment should consist of continued administration of large amounts of sugar combined with ordinary insulin, vitamin B_1 and its derivatives (cocarboxylase), and certain "glycoformative" amino acids, such as glutamic acid. Inhalation of oxygen and carbon dioxide may be used if necessary.

Practitioner, London

167:211-304 (Sept.) 1951. **Partial Index**

Smallpox Immunization. E. T. Conybeare.—p. 215.
Diphtheria Immunization. A. H. Gale.—p. 228.
Whooping-Cough Immunization. W. C. Cockburn.—p. 232.
Measles Immunization. M. Mitman.—p. 237.
Typhoid Immunization. J. Bamforth.—p. 241.
Tetanus Immunization. L. Cole.—p. 247.
Immunization and Air Travel. K. G. Bergin.—p. 252.

Prensa Médica Argentina, Buenos Aires

38:1927-1986 (Aug. 3) 1951. **Partial Index**

Scarlet Fever in Nursing Infants. I. R. Steinberg and H. Lefevre.—p. 1937.
*Treatment of Herpes Zoster with D.H.E. 45. A. Caporaletti.—p. 1942.
Rehabilitation of the Hemiplegic. E. A. Rottjer and M. C. Lascalea. —p. 1946.

Treatment of Herpes Zoster with Dihydroergotamine.—Caporaletti treated 16 patients with herpes zoster with dihydroergotamine (DHE 45). Doses consisted of 0.5 cc. daily for children and 1 cc. daily for adults, for periods of from 2 to 16 days. Ergotamine and its derivative, dihydroergotamine, which act upon the sympathetic nervous system, represent the first truly effective remedy for herpes zoster, in which sympathetic factors are associated with a virus infection. The sympathicolytic and adrenolytic properties of dihydroergotamine are more pronounced than those of ergotamine, but unlike ergotamine it has no uterotonic action. In one of the author's cases, the patient was 7½ months pregnant and was given 1 cc. of dihydroergotamine daily for six days without any untoward effects.

Quarterly Journal of Medicine, Oxford

20:93-204 (April) 1951

*Subacute Bacterial Endocarditis: Review of 442 Patients Treated in 14 Centres Appointed by the Penicillin Trials Committee of the Medical Research Council. J. E. Cates and R. V. Christie.—p. 93.
Chronic Monocytic Leukemia. J. W. Beattie, R. M. E. Seal and K. V. Crowther.—p. 131.
Effect of Tobacco on Lung-Volume. A. G. W. Whitfield, W. M. Arnott and J. A. H. Waterhouse.—p. 141.
Uraemia Complicating Low Salt Treatment of Heart Failure. A. B. Black and J. A. Litchfield.—p. 149.
Heart Failure in Acute Nephritis. C. E. Davies.—p. 163.
Carcinoma of Bronchus: Clinical and Pathological Survey of 866 Cases. C. C. Bryson and H. Spencer.—p. 173.
Megaloblastic Anaemia of Pregnancy and the Puerperium: Review of 45 Cases with Special Reference to Their Response to Treatment. R. B. Thompson and C. C. Ungley.—p. 187.

Subacute Bacterial Endocarditis.—Between 1945 and 1948 a total of 442 patients with subacute bacterial endocarditis were treated with penicillin under a scheme organized by the Medical Research Council of Britain. The ages of the patients ranged up to 74 years, but nearly two-thirds were less than 35. Although the sexes were equally affected, disease of the mitral valve alone was almost twice as common in females as in males, whereas disease of the aortic valve alone was five times commoner in males than in females. The underlying heart lesion was congenital in 13% of the patients. The sex incidence of congenital lesions was equal, but ventricular septal defect was commoner in the male and patent ductus arteriosus was commoner in the female sex. The infecting organism was an α-hemolytic streptococcus in 87% of the cases. A dental focus of infection or a history of dental extraction was present in 48% of a representative group of 215 cases. The results of the trials of the Research Council suggest that the minimum dosage should be 2,000,000 units of penicillin daily for four to six weeks. Patients who relapsed did so within a month after the end of treatment in over 90% of the cases. After six months of apparent cure, the risk of delayed relapse or reinfection is 2% per year. There was a major arterial embolism in 35% of the cases, and in half of these it was cerebral. Coronary embolism was recognized in 2% of cases during life and was found in 13% of the autopsies. Valves were stained for organisms in 60 cases in which patients died with the infection apparently controlled; organisms were seen in 39 of these and were viable in 19. Of the 408 patients who had positive blood cultures before treatment, 14.5% died during treatment and an additional 27.4% died in the first six months after treatment; in subsequent years, an average of only 4% of survivors died each year. The 34 patients with negative blood cultures had evidence of bacterial infection, for fever responded to penicillin in 25, and in one-half of those who came to autopsy organisms were found on the heart valves. Only six patients were cured. This low proportion was due in part to the high incidence of heart failure and in part to inadequate treatment. It is suggested that this type of patient may need a larger daily dose of penicillin than patients with positive blood cultures.

Radiologia Medica, Turin

37:433-528 (June) 1951. **Partial Index**

Possibility of Axial-Transverse Tomography with Partial Rotation. L. Oliva.—p. 433.
Morphological and Functional Observations in Dolichosigmoid. G. Lischi. —p. 445.
*Primary Tumors of Lung and Atelectasis: Roentgenographic Aspects. C. Scarinci.—p. 461.

Diagnosis of Primary Cancer of Lung.—Clinical diagnosis of primary cancer of the lung is very difficult because of its polymorphism simulating pleuropulmonary tuberculosis, abscess of the lung, bronchial stenosis, pleuropulmonary sclerosis, and other conditions. Roentgen shadows that could be considered as characteristic of cancer of the lung have never been observed, and direct visualization of this neoplasm is rare. Therefore, the roentgenologic investigation should include tomographic and bronchographic studies. The author believes that bronchography is the most important aid in the roentgen diagnosis of primary cancer of the lung. If both the roentgenographic and bronchographic studies reveal the presence of stenosis of the bronchi and of secondary atelectasis, diagnosis of cancer is strongly suggested, because in 80% of the cases the tumor originates in the bronchi. An endobronchial sound is indispensable for carrying the contrast medium as far as possible within the bronchus for exploration. If the medium is injected slowly, it is possible to follow on the screen its course in the bronchial tree. Arrest of the medium reveals the presence of endobronchial stenosis or compression of the bronchus by a neoplastic process outside of the bronchus. As a rule atelectasis is always an early manifestation of an early endobronchial tumor, so that surgical intervention is feasible. When roentgen therapy has failed, pulmonary surgery has given gratifying results, and for this reason early diagnosis of cancer of the lung is very important. The author presents bronchograms of four patients with cancer of the lung that demonstrate the fundamental importance of this roentgenologic method.

Revista Clínica Española, Madrid

41:147-226 (May 15) 1951. **Partial Index**

*Observations on Sarcoleukosis. G. Paniagua, M. Morales Pleguezuelo and C. Jiménez Díaz.—p. 153.
*Treatment of Hypothyroidism with Halogen Proteins. L. de Gennes, G. Deltour, and I. Benzecry.—p. 182.

Observations on Sarcoleukosis.—The authors studied 12 cases of acute leukemia with lymphosarcomatous cells, which they call sarcoleukosis. They state that this is the most frequent form of acute lymphatic leukemia, especially in childhood. It may appear as part of generalized lymphosarcomatosis, or as an acute process apparently of primary origin. Diagnosis depends on the recognition of a cell, the sarcoleukocyte, which is found in the blood, the marrow, and all the affected organs. Sarcoleukosis is accompanied by specific tumors, which may precede the appearance of the leukemia or may occur simultaneously with it. The authors state that this type of leukemia may be the one most closely resembling the spontaneous leukemias of animals or that caused by inoculation, in which the characteristics of tumors and of leukemia alternate or are mingled. They agree with Magrassi's concept of a tumorous process caused by a virus.

Treatment of Hypothyroidism with Halogenated Proteins.—The authors treated 67 patients with various manifestations of hypothyroidism with halogenated proteins. These proteins were prepared by bromination and iodination of casein. They proved to have all the properties of thyroid extracts; they were more active, weight for weight; and, because they contain organically fixed bromine, which by its sedative action counteracts the neurotonic and heart-accelerating effects of thyroxine, they did not have its disadvantages. They were administered in progressive doses, beginning with 50 mg. a day, increasing gradually until, in certain severe cases, as much as 500 mg. was given daily. The drug was given until clinical symptoms receded, after which the daily dose was progressively diminished to 200, 100, and 50 mg. An increase in the metabolic rate, in diuresis, and in the pulse rate appeared by the end of the first week, accompanied by a decline in the serum cholesterol and the recession of clinical symptoms. Apathy and asthenia were among the first of these to disappear; the mind became keener, and the patients showed greater interest in their surroundings.

Revista Española de Tuberculosis, Madrid

20:411-474 (July) 1951. **Partial Index**

*Primary Cancer of Lung. A. Jarne.—p. 439.

Primary Cancer of the Lung.—Jarne observed 21 patients with primary cancer of the lung. The group included 20 men between the ages of 40 and 55 and a woman 60 years old. In 14 patients, the first symptom was cough, alone or associated with pain and small repeated hemoptysis; in 7 patients, it was pain alone or associated with hemoptysis. Four patients had dyspnea, and seven had lost much weight. The sputum of all patients was negative for tubercle bacilli, whereas that of 13 patients, as well as the pleural exudates from a patient with hemorrhagic pleurisy and pleuropulmonary cancer, contained degenerate cancer cells. A diagnosis of cancer of the lung was made roentgenographically. Cancer involved the whole left lung in three cases, one lobe of the left lung in 11 cases, and one or two lobes of the right lung in 7 cases. The upper lobes were more frequently involved than the lower ones. Biopsy was made by bronchoscopy or thoracotomy. Out of 21 patients in whom this diagnosis was made, 6 did not appear for treatment, and 4 died without any treatment. Cure was obtained in one of eight patients who had roentgen therapy. The patient is still living in good health three years after discontinuation of roentgen treatment. Seven patients in this group died. In the group of three patients who had a pneumonectomy one died from cardiac insufficiency a few days after the operation. Two patients are cured and are in good health three years after pneumonectomy.

Ugeskrift for Laeger, Copenhagen

113:1081-1114 (Aug. 16) 1951

*Extraperiostal Pneumolysis: Collapse Operation of Renewed Present Day Interest. O. Christensen.—p. 1081.
*Roentgenologic Demonstration of Localization of Primary Complexes in Extrapulmonary Tuberculosis. E. F. Eisum.—p. 1085.
Late Meningitis After Fracture of Base of Brain. P. Menck-Thygesen and W. Munck.—p. 1087.

Extraperiostal Pneumonolysis.—Christensen says that by combined treatment with dihydrostreptomycin and paraaminosalicylic acid (PAS) patients with far-advanced tuberculosis may often be improved sufficiently for collapse treatment. An increasing number of patients with large cavities need collapse treatment, but thoracoplasty is contraindicated by the condition of the contralateral lung, and extrapleural pneumothorax entails the danger of perforation of large subpleural cavities. In a number of cases in this category extraperiostal pneumonolysis represents the only possibility for effective collapse therapy.

Localization of Primary Complexes of Extrapulmonary Tuberculosis.—Eisum investigated the frequency with which the portal of entry of the tubercle bacilli in patients with extrapulmonary tuberculosis can be determined by roentgenologic examination for calcifications in the lymph node component of the primary complex. Routine roentgen examination of neck, thorax, and abdomen in 144 patients with clinically certain extrapulmonary tuberculosis showed one or more portals of entry in 83 patients (58%), with calcified lymph nodes in the thorax in 69 cases, in the abdomen in 18, and in the neck in 10. The tubercle bacilli were of human type in 70 and of bovine type in 10 of 80 patients studied.

Zeitschrift für klinische Medizin, Heidelberg

148:331-430 (No. 4) 1951. **Partial Index**

Experimental Investigations on Tolerance for Insulin in Healthy Human Subjects. W. Rössel and L. Wullen.—p. 331.
Nitrogen Balance in Parenchymal Lesions of Liver: Their Modification by Choline and Methionine. G. A. Martini and G. A. von Harnack. —p. 341.
Determination of the Neutral C^{17} Ketosteroids in Adiposity, Lipophilic Dystrophy and Other Metabolic Disturbances. G. Lohmeyer and H. A. Ahlhelm.—p. 352.
*Failure of Sympathetic Regulation with Fatal Results After Sympathectomy in Hypertension. K. H. Pfeffer.—p. 380.
Diagnosis and Therapy of So-Called Libman-Sacks' Disease. H. Franke and H. Wördehoff.—p. 396.
Electrocardiographic Studies on Post Mortem Arrest of Cardiac Function in Human Subjects. H. Gillmann.—p. 415.

Failure of Sympathetic Regulation After Sympathectomy.—Of the 176 patients with hypertension (100 men and 76 women) operated on at the Mannheim City Hospitals during the years between 1944 and 1950 according to the procedure of Peet and Smithwick, a total of 54 patients died, 27 of these in direct connection with the operation. The surgical mortality was particularly high during the first two years of this period, probably largely because patients were operated on who later were shown not to have been suitable for sympathectomy. Of these 27 patients, 17 showed signs of infection and various forms of collapse-like failure of the circulatory system. In the second group of 10 cases, death apparently resulted from uremic coma. The preoperative examination of these hypertensive patients revealed in the great majority of cases severe vascular changes. The patients who died in uremia showed in addition before the operation great impairment of renal function. Some observations indicated particularly unfavorable circulatory conditions in the cerebral vessels. The cause of the high surgical mortality is thus explained chiefly by the type of patients operated on. Patients with hypertension in whom the functional and organic vascular disturbances are far advanced are apparently highly sensitive to an intervention that disturbs their sympathetic equilibrium.

BOOK REVIEWS

Clinical Pediatric Urology. By Meredith Campbell, M.S., M.D., F.A.C.S., Professor of Urology, New York University Post-Graduate Medical School, New York. With section on Nephritis and Allied Diseases in Infancy and Childhood. By Elvira Goettsch, A.B., M.D., Associate Professor of Pediatrics, University of Southern California School of Medicine, Los Angeles, and John D. Lyttle, A.B., M.D. Cloth. $18. Pp. 1113, with 543 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1951.

There is no doubt that this is the definitive work on clinical pediatric urology. For a reference work the detail and completeness are virtues; however, textbooks that pass through several editions often suffer from the fact that, in the interest of completeness, additions are constantly made and deletions are few. The result may be a large and rather unwieldly volume. The author has faced difficulties in deciding the scope of the volume. Should he assume that the reader is well versed in general urology and discuss only the variations concerning infants and children, or should he write a more or less complete treatise on urology, with special attention directed to pediatric problems? The latter course has been chosen and is well exemplified, for instance, in the chapter on urinary calculi in which the entire field, including etiology, pathogenesis, and prophylaxis, has been dealt with at length. Among other subjects, which of necessity overlap and duplicate subject matter found in textbooks of general urology, might be mentioned infection, anomalies, injuries, neuromuscular uropathy, and tumors.

The book is extremely well written, and the author's knowledge of world literature is nothing short of phenomenal. In addition to providing a most complete bibliography at the end of each chapter, the text has been written to portray the developments of each subject from the beginning to the present. In order to do this the author has inserted, in parentheses in the running text, the author's name and year of publication of important articles associated with each step or advance that has been made. Such a method of presentation affords an excellent means of review to the practicing urologist and a most interesting and comprehensive presentation of the subject to the student. The urologist who finds himself confronted with a gradually increasing amount of pediatric urology will especially appreciate the chapter on methods of examination and diagnosis. In this chapter Campbell explains the great difference between methods of diagnosis and treatment in infants and in adults. Detailed description of special urologic instruments available, and their use, will be read with great interest by every urologist. Of no less interest in this regard is the section on nursing care in pediatric urologic surgery, contributed by Helen T. Goddard.

The chapters on embryology and anomalies and urinary obstruction are classics. These are the chapters which everyone thinks of when Campbell's Clinical Pediatric Urology is mentioned. They have been enlarged and improved over the previous edition. The author's wealth of experience in both clinical and necropsy material lends authority to his statements. The bibliographic references inserted in the text make it possible for the reader to survey a vast amount of material quickly. The chapter on operative procedure is well written and illustrated, but here again (except for transurethral procedures, such as litholapaxy and transurethral resection of the vesical neck) it greatly duplicates material found in books on general urology or urologic surgery. The chapter on nephritis and allied diseases in infancy and childhood, written by Elvira Goettsch, is nothing short of a masterpiece. She has clarified a most confusing subject and reduced it to common terms and logic that can be understood by all. The profession will welcome and greatly benefit from this book. The author is to be congratulated on this great contribution, which has required an untold amount of time and work. Probably no better compliment could be paid to the author than to say that, with only a few additions, this work could be redesigned as a two volume book comprising both general and pediatric urology and could take its place as one of the most outstanding books on urology yet written.

Proceedings of the First Conference on Electrokymography Held May 25-26, 1950, in Bethesda, Md., Sponsored by the National Heart Institute. Editors: Bert R. Boone, Frederick G. Gillick, Russell H. Morgan and Morton J. Oppenheimer. Federal Security Agency, Public Health Service, National Heart Institute of National Institutes of Health, Public Health Service publication no. 59. Paper. 75 cents. Pp. 215, with illustrations. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1951.

About 40 investigators in this special field of investigation took part in this conference. Although the group included nearly all those who are doing research on electrokymography, it was small enough to permit free and detailed discussion of each paper. The various technical aspects of this procedure, as well as the clinical application, were covered well in the papers and discussion that followed.

Electrokymography was developed jointly by members of the staff of Temple University Medical School and the United States Public Health Service. The first electrokymograph made its appearance in 1945. The instrument today is essentially a photoelectric device by which the movements of the heart, as they appear on a fluoroscopic screen, are recorded. The heart border movements and changes in density of the cardiac shadow are translated by the electrokymograph to current changes, which, by means of a beam-type galvanometer, can be made to record on moving bromide paper. The record so obtained is called the electrokymogram. Although the earliest workers were concerned with heart border changes, more recent studies seem to indicate that variations in shadow densities over various portions of the heart may eventually be more important clinically. Although the instrument was first used less than six years ago, it is already evident from the papers and discussion at this conference that enough groundwork has been done to proceed with clinical studies, which may have considerable importance in the future.

This booklet is a good reference book for those who are interested in keeping up with a progress being made in this special field of research. The articles are well illustrated. A bibliography of the important work in electrokymography is given at the end of this book.

Statistics for Medical Students and Investigators in the Clinical and Biological Sciences. By Frederick J. Moore, M.D., Associate Professor of Experimental Medicine, University of Southern California School of Medicine, Los Angeles, Frank B. Cramer, B.A., Research Fellow, and Robert G. Knowles, M.S., Research Associate, Department of Experimental Medicine, University of Southern California School of Medicine. Cloth. $3.25. Pp. 113, with 11 illustrations. Blakiston Company (division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1951.

This book, according to the preface, is more concerned with providing a grasp of the fundamental concepts and philosophies than with developing technical facility in the application of statistical methods. There is reason to doubt whether generalizations can ever be taught without an abundance of specific instances, and, in the case of this book, with its paucity of examples, lack of exercises, vague introductions, and omission of "the mathematics of derivation," there is little that a beginner can get his teeth into. The notion of "control" in the special sense of a contratest (*contre-essai, Gegenversuch*) is not made completely clear, and even a student with some knowledge of biometry is likely to find the allusions to probits baffling. In the hands of an uncommonly good teacher, armed with an abundance of illustrative examples, this book may be useful to graduate students in the clinical and biological sciences, but it cannot be recommended as required or introductory reading for medical students, because its small size is achieved only by the omission of much vital substance.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

QUERIES AND MINOR NOTES

STERILIZATION OF NEEDLES

To the Editor:—*Please answer a few questions: 1. Assuming that a syringe and needle are infected with serum hepatitis virus, how long would one have to boil them (submerged in water in a covered enamel dish) to render them safe for use? 2. Would this method suffice when the infecting agent is poliomyelitis virus? 3. Does the addition of 2% iodine to 70% ethyl alcohol enhance it as a skin antiseptic? 4. What do you consider to be the best skin antiseptic for use before administration of injections? 5. How much of a time interval should elapse between application of skin antiseptic and administration of the injection?* *M.D., Illinois.*

Answer.—1. Fifteen minutes actual boiling is recommended if instruments are free from organic substances (e. g., pus and blood). 2. Yes. 3. Yes. 4. and 5. The comparative efficacy of three common types of skin antiseptics is reported by Hanks and Wallace (*Proc. Soc. Exper. Biol. & Med.* **71**:200 [June] 1949). They found that when areas of which biopsy was to be made for tissue culture were covered with a heavy patch of fabric saturated with 3.5% iodine solution (tincture of iodine 1:2 in 70% alcohol by weight) for two minutes and were then recleaned with alcohol bacterial contamination in subsequent cell cultures was eliminated. Recleaning of the area with alcohol removed the residual iodine, which was toxic to cells in vitro. Frequent contamination was encountered when a quarternary ammonium compound and an organic mercurial were employed.

METRIC VERSUS APOTHECARY SYSTEM

To the Editor:—*It has been ruled in this hospital that all orders are to be written in the apothecary system. What is your opinion of this?* *M.D., Oklahoma.*

Answer.—The metric system for recording weights and measures, based on the decimal system, is the preferred system. It is safer and easier to use. "Since 1893 the U. S. Bureau of Standards has defined all weights and measures in terms of metric units. The metric system is the official system of the United States Pharmacopeia and the National Formulary, and many non-official formularies use it. It is much used in prescriptions, and the physicians of the Army and Navy are required to use the metric system exclusively. In 1943 the Council on Pharmacy and Chemistry of the American Medical Association adopted a resolution to use only the metric system to express dosages in its publications. The use of the metric system is legalized in all of the countries of Europe and South America, and in many of them its use is compulsory for all purposes. It is universally used in science." (American Pharmacy, Philadelphia, J. B. Lippincott Company, 1945, p. 9).

PIGMENTED NEVI

To the Editor:—*What is the latest treatment of pigmented plantar nevi? My patient is a 3-year-old girl, and there is no evident disturbance of the lesion.* *M.D., New York.*

Answer.—Although there is still considerable difference of opinion about the treatment of pigmented nevi, it is generally held that all such lesions, particularly if they are black or slate gray, should be excised if they are located on areas, such as a plantar surface, that are subject to repeated irritations. There is some reason to believe, also, that it is best to do so before the onset of puberty. If the histologic examination shows any activity whatever at the epidermodermal junction, the excised area should be extended widely.

RH CLASSIFICATION

To the Editor:—*Recently I received a report on a blood specimen as follows: Rh factor: positive (Rh$_o$—negative, Rh'—negative, Rh"—positive). Is it not a mistake to call this patient Rh positive, as the report seems to indicate? For could not the patient become sensitized to Rh$_o$-positive blood if it were given to her?* *D. M. Barringer, M.D., Lincoln, Ill.*

Answer.—The blood of the patient in question possesses factor rh", but lacks factors Rh$_o$ and rh', so that this patient belongs to type rh". Since the patient lacks the Rh$_o$ factor, she might become sensitized to this factor if Rh$_o$-positive blood were given to her. Moreover, Rh$_o$ is the most antigenic of the three Rh factors, and the usual cause of Rh sensitization. Therefore, persons like this patient, who lack the Rh$_o$ factor, should be considered Rh negative for clinical purposes. When used as donors, on the other hand, such persons should be considered Rh positive, in order to avoid reactions caused by sensitization to the rh" factor.

FEVER DURING BASAL METABOLISM TESTS

To the Editor:—*In the service manual for the McKesson waterless metabulator, no. 185, appear the following statements: "Each degree of fever will raise the basal rate 7.2%. Patients often have subnormal temperatures. This would, of course, subtract 7.2% per degree." If I interpret this correctly, a patient with a temperature of 97.6 F should have 7.2% added to the reading arrived at. Many technicians do not correct for a subnormal temperature. Would you please advise me as to the accepted procedure on this matter?*

M.D., Nebraska.

Answer.—The manufacturer's statement and your interpretation are correct. However, in routine clinical practice very little attention is paid to the temperature in doing basal metabolism tests, unless the patient actually has fever. When fever is present, the test is usually postponed until the temperature becomes normal.

ANGIONEUROTIC EDEMA OF GALLBLADDER

To the Editor:—*A patient who has had severe hives for over five years occasionally has attacks resembling gallbladder colic. This is followed by an exacerbation of the hives. The gallbladder shadow does not appear in roentgenograms following ingestion of dye. She has been told that this represents internal hives. Could this be possible?* *M.D., Wisconsin.*

Answer.—It is possible to have edema in the gallbladder ducts or in the gallbladder as a result of localized or generalized urticaria or angioneurotic edema. This would be a hazardous diagnosis to make. One of the requirements for localized angioneurotic edema of the gallbladder would be the visualization of the organ by x-ray with dye in the interim between attacks. A more likely cause of the generalized urticaria in this case is the presence of gallbladder infection or other lesion.

SOY BEAN EXTRACTS

To the Editor:—*A man aged 65 informs me that he has experienced definite rejuvenation of his sex life as a result of taking soya lecithin grade "RG" (Glidden). He wants to know if any deleterious effect might follow the long-continued ingestion of this substance. Is there any evidence to show that soya lecithin has any effect on the physiological impotence of old age?* *M.D., Connecticut.*

Answer.—There is no evidence that any of the steroids contained in soy bean extracts have any hormonal action, and there is no evidence that the phospholipids have such an action. No information is available on any deleterious effects from long-continued ingestion.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, SEPTEMBER-DECEMBER 1951

Titles have been listed or abstracts made of important articles in the following journals in the Current Literature Department of The Journal during the past four months. Any of the journals, except those starred, will be lent by The Journal to individual subscribers in Continental United States and Canada and to members of the American Medical Association and its student organization. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each periodical. Three journals may be borrowed at a time for a period not exceeding five days. Requests should be addressed to the Library of the American Medical Association. Thus most of these journals are accessible to the general practitioner.

*A. M. A. American Journal of Diseases of Children. Chicago.
*A. M. A. Archives of Dermatology and Syphilology. Chicago.
*A. M. A. Archives of Industrial Hygiene and Occupational Medicine. Chicago.
*A. M. A. Archives of Internal Medicine. Chicago.
*A. M. A. Archives of Neurology and Psychiatry. Chicago.
*A. M. A. Archives of Ophthalmology. Chicago.
*A. M. A. Archives of Otolaryngology. Chicago.
*A. M. A. Archives of Pathology. Chicago.
*A. M. A. Archives of Surgery. Chicago.
Acta chirurgica scandinavica. Stockholm.
Acta gastro-enterologica belgica. Brussels.
Acta medica orientalia. Jerusalem.
Acta medica Scandinavica. Stockholm.
Acta obstetricia et gynecologica scandinavica. Stockholm.
Acta oto-laryngologica. Stockholm.
Acta paediatrica. Stockholm.
Acta physiologica scandinavica. Stockholm.
Actas dermo-sifiliográficas. Madrid.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Fort Wayne, Ind.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Occupational Therapy. Milwaukee.
American Journal of Ophthalmology. Chicago.
American Journal of Orthopsychiatry. New York.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Physiology. Baltimore.
American Journal of Psychiatry. New York.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine. Baltimore.
American Practitioner and Digest of Treatment. Philadelphia.
American Review of Tuberculosis. New York.
American Surgeon. Atlanta, Ga.
Anesthesiology. New York.
Angiology. Baltimore.
Annales chirurgiae et gynaecologiae Fenniae. Helsinki.
Annals of Allergy. Minneapolis.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otology, Rhinology and Laryngology. St. Louis.
Annals of the Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Annals of Western Medicine and Surgery. Los Angeles.
Archiv für Gynäkologie. Munich.
Archiv für klinische Chirurgie. Heidelberg.
Archives of Disease in Childhood. London.
Archives françaises de pédiatrie. Paris.
Archives of Pediatrics. New York.
Archivo di tisiologia. Naples.
Archivos de la Sociedad de Cirujanos de Chile. Santiago.
Archivos uruguayos de medicina, cirugía y especialidades. Montevideo.
Archivum chirurgicum neerlandicum. Arnhem.
Arizona Medicine. Phoenix.
Arquivos de clínica. Rio de Janeiro.
Australian and New Zealand Journal of Surgery. Sydney.
Beiträge zur Klinik der Tuberkulose. Berlin-Heidelberg.
Biochemical Journal. London.
Blood. New York.
Brain. London.
British Heart Journal. London.
British Journal of Cancer. London.
British Journal of Dermatology. London.
British Journal of Experimental Pathology. London.
British Journal of Industrial Medicine. London.
British Journal of Ophthalmology. London.
British Journal of Physical Medicine. London.
British Journal of Plastic Surgery. Edinburgh.
British Journal of Radiology. London.
British Journal of Social Medicine. London.
British Journal of Surgery. Bristol.
British Journal of Urology. London.
British Medical Journal. London.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the Los Angeles Neurological Society. Los Angeles.
Bulletin of the New York Academy of Medicine. New York.
Bulletin of School of Medicine of University of Maryland. Baltimore.
California Medicine. San Francisco.
Canadian Journal of Medical Sciences. Ottawa.
Canadian Journal of Public Health. Toronto.
Canadian Medical Association Journal. Montreal.
Cancer. New York.
Cancer Research. Chicago.
Chirurg. Berlin-Heidelberg.
Cincinnati Journal of Medicine. Cincinnati.
Circulation. New York.
Clinical Science. London.
Connecticut State Medical Journal. Hartford.
Delaware State Medical Journal. Wilmington.
Deutsche medizinische Wochenschrift. Stuttgart.
Deutsche Zeitschrift für Nervenheilkunde. Heidelberg.
Día médico. Buenos Aires.
Diseases of Chest. Chicago.
Documenta neerlandica et indonesica de morbis tropicis. Amsterdam.
Edinburgh Medical Journal. Edinburgh.
Electroencephalography and Clinical Neurophysiology. Boston.
Endocrinology. Springfield, Ill.
Endokrinologie. Leipzig.
Folia haematologica. Leipzig.
Gastroenterologia. Basel.
Gastroenterology. Baltimore.
Geriatrics. Minneapolis.
Giornale di clinica medica. Parma.
Glasgow Medical Journal. Glasgow.
GP (Journal of American Academy of General Practice). Kansas City, Mo.
Haematologica. Pavia.
Hawaii Medical Journal. Honolulu.
Helvetica paediatrica acta. Basel.
Hoja tisiológica. Montevideo.
Hospital. Rio de Janeiro.
Illinois Medical Journal. Chicago.
Industrial Medicine and Surgery. Chicago.
International Journal of Leprosy. New Orleans.
Irish Journal of Medical Science. Dublin.
Journal of Allergy. St. Louis.
Journal of American Medical Women's Association. Nashville, Tenn.
Journal of Applied Physiology. Washington, D. C.
Journal of Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine. St. Paul.
Journal of Bacteriology. Baltimore.
Journal of Bone and Joint Surgery. Boston.
Journal of Clinical Endocrinology. Springfield, Ill.
Journal of Clinical Investigation. Cincinnati.
Journal of Clinical Pathology. London.
Journal of Endocrinology. London.
Journal of Experimental Medicine. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal of Gerontology. St. Louis.
Journal of Hygiene. London.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of Infectious Diseases. Chicago.
Journal of Insurance Medicine. Louisville, Ky.
Journal of International College of Surgeons. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Iowa State Medical Society. Des Moines.
Journal of the Kansas Medical Society. Topeka.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal of Laryngology and Otology. London.
Journal of the Maine Medical Association. Portland.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal de médecine de Lyon. Lyon.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Lansing.

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* Cannot be lent.

Journal of the Missouri State Medical Association. St. Louis.
Journal of Mount Sinai Hospital. New York.
Journal of National Cancer Institute. Washington, D. C.
Journal of National Malaria Society. Columbia, S. C.
Journal of Nervous and Mental Disease. New York.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Journal of Neuropathology and Clinical Neurology. Chicago.
Journal of Neuropathology and Experimental Neurology. Baltimore.
Journal of Neurophysiology. Springfield, Ill.
Journal of Neurosurgery. Springfield, Ill.
Journal of Nutrition. Philadelphia.
Journal of the Oklahoma State Medical Association. Oklahoma City.
Journal of Pathology and Bacteriology. Edinburgh.
Journal of Pediatrics. St. Louis.
Journal of Pharmacology and Experimental Therapeutics. Baltimore.
Journal of the Philippine Medical Association. Manila.
Journal of Physiology. London.
Journal of the South Carolina Medical Association. Florence.
Journal of the Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Tropical Medicine and Hygiene. London.
Journal of Urology. Baltimore.
Journal of Venereal Disease Information. Washington, D. C.
Journal-Lancet. Minneapolis.
Kentucky Medical Journal. Bowling Green.
Klinische Wochenschrift. Berlin-Heidelberg.
Krebsarzt. Vienna.
Lancet. London.
Laryngoscope. St. Louis.
Lyon chirurgical. Lyon.
Maandschrift voor kindergeneeskunde. Leyden.
Medical Annals of the District of Columbia. Washington.
Medical Journal of Australia. Sydney.
Medicina. Buenos Aires.
Medizinische Monatsschrift. Stuttgart.
Medizinische Welt. Stuttgart.
Mental Hygiene. Albany, N. Y.
Military Surgeon. Washington, D. C.
Minerva chirurgica. Turin.
Minerva ginecologica. Turin.
Minerva medica. Turin.
Minnesota Medicine. St. Paul.
Monatsschrift für Kinderheilkunde. Berlin.
Münchener medizinische Wochenschrift. Munich.
Nebraska State Medical Journal. Lincoln.
Nederlandsch tijdschrift voor geneeskunde. Amsterdam.
Neurology. Minneapolis.
New England Journal of Medicine. Boston.
New Orleans Medical and Surgical Journal. New Orleans.
New York State Journal of Medicine. New York.
New Zealand Medical Journal. Wellington.
Nordisk medicin. Stockholm.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
Obstetricia y ginecología latino-americanas. Buenos Aires.
Ohio State Medical Journal. Columbus.
Ophthalmologica. Basel.
Paris médical. Paris.
Pediatrics. Springfield, Ill.
Pennsylvania Medical Journal. Harrisburg.
Physiological Review. Baltimore.
Plastic & Reconstructive Surgery. Baltimore.
Postgraduate Medicine. Minneapolis.
Practitioner. London.
Praxis. Bern.
Prensa médica argentina. Buenos Aires.
Presse médicale. Paris.
Proceedings of Royal Society of Medicine. London.
Proceedings of the Society for Experimental Biology and Medicine. Utica. N. Y.
Proceedings of Staff Meeting of Mayo Clinic. Rochester, Minn.
Psychiatric Quarterly. Utica, N. Y.
Psychiatry. Washington, D. C.
Psychoanalytic Quarterly. Albany, N. Y.
Psychoanalytic Review. Albany, N. Y.
Psychosomatic Medicine. New York.
Public Health Reports. Washington, D. C.
Quarterly Journal of Medicine. Oxford.
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The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "ab," abstracts; the asterisk (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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01—208	2	Sept. 8	617— 708	7	Oct. 13	999—1092	11	Nov. 10	1401—1508	15	I
9— 288	3	Sept. 15	709— 798	8	Oct. 20	1093—1186	12	Nov. 17	1509—1610	16	I
9— 360	4	Sept. 22	799— 910	9	Oct. 27	1187—1310	13	Nov. 24	1611—1720	17	I
1— 534	5	Sept. 29							1721—1850	18	